WEIGHING INDICATOR

IPC 20 and IPC 50

USER MANUAL

(valid from version 03.11)

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1 INTRODUCTION

The purpose of this manual is to help the user get to know the weight indicator's various functioning modes, the keys' functions and the display indications

We advise to carefully follow the instructions for programming the weight indicator; by taking actions not indicated this manual, one could cause the scale to not work properly.

In addition to having all the characteristics of a high precision scale, the indicator has the kg/lb conversion function, the gross weight / net weight conversion, set point on gross weight or net weight, in/out weigh, repeater in r.f. transmission, alibi memory, hold function, peak detector, weighs totaliser and piece counter.

The indicator adapts to normal weighing applications in either industrial settings, such as during factory production processes, or that of commerce, such as legal for trade applications, also satisfying the frequently needed ability to transmit and print the data through its two bidirectional serial ports.

This manual has been made as carefully and exactly as possible; in any case, your suggestions are always welcome.

WARNING

Any attempt to repair or alter the unit can expose the user to the danger of electric shock and it will void our warranty. This instrument is covered under warranty provided that **IT HAS NOT BEEN OPENED BY THE USER** for any reason. If any problem with the unit or system has been experienced please notify the manufacturer or the dealer from which the instrument was acquired.

Do not pour liquids on the indicator!
Do not use solvents to clean the indicator!
Do not expose instrument to either direct sun light or any heat sources!
Always mount the indicator and platform in a vibration free setting!
Read carefully & apply what described in the POWER SUPPLY & START-UP section!
Do not install in an environment with any risk of explosion!

2 MAIN TECHNICAL SPECIFICATIONS

POWER SUPPLY	12 to 25Vdc / 500mA max 230Vac +10% ÷ -15%, 50-60Hz with external wall adapter providing 12Vdc/500mA (included) or rechargeable internal 6 V (optional).
MAXIMUM POWER	5 VA
OPERATING TEMPERATURE	From -10 to +40 °C (14 to 104 °F).
DISPLAYED DIVISIONS	10000e, 3X3000e for legal for trade use expandable to 800.000 for internal use (with **minimum** signal coming from the 1,6mV/V cell).
RESOLUTION IN CALCULATION	1'500'000 points (with signal in input equal to 3mV/V).
DISPLAY	6 digits, 25 millimetres high
STATUS INDICATIONS	7 LEDS. 25 multifunction symbols on the LCD display
KEYBOARD	water resistant polycarbonate membrane keys with tactile and acoustic feedback.
TARE FUNCTION	Available on entire range, from keyboard or from optional remote control. Subtraction function on all models.
AUTO POWER OFF	Programmable from 1 to 255 minutes, or disinserted.
LOW BATTERY WARNING	"Low Batt " will appear on the display
BATTERY RECHARGE TIME	12 hours (maximum).
LOAD CELL POWER SUPPLY	5Vdc ± 5%, 120mA (max 8 cells of 350 Ohms)
LOAD CELL CONNECTIONS	6 wires with Remote Sense
PROTECTIVE CASE	Oven fire painted IP 54 steel case available in column, desk, shelf, or wall mount configurations. Optional Waterproof IP65 Stainless Steel also available.
SERIAL OUTPUTS	1 RS232/RS485 input/output configurable for connection to PC/PLC or WEIGHT REPEATER. 1 RS232/TTL input/output for connection to printer.

THE PARTS OF THE INSTRUMENT CONTAINING DANGEROUS ELECTRICAL TENSION ARE ISOLATED AND INACCESSIBLE TO THE USER UNLESS IT HAS BEEN DAMAGED, OPENED, OR ALTERED.

3 SYMBOLS

To call the attention of the user, the following symbols are used both in the manual and on the instrument itself:

⚠ Warning! This operation must be performed only by qualified personal.

CE Conforms to the standards of the European Union.

(III) Identifies the Class Of Precision defined by the OIML to represent 3000 divisions

4 INSTALLATION

The digital weight indicator has an oven fire painted steel case (or stainless steel option), whose external dimensions are represented in FIGURE 1. While it is quite easy to operate on a tabletop, if a fixed support is desired, mounting on a rack, shelf or column is relatively simple.

NOTE: When the identification plate is supplied separately (therefore not attached to the front panel) it is advisable to attach it in the appropriate space on the indicator, so that it can be identified.

FIGURE 2 shows the IPC50 version with its case for the panel mounting with another suitable container.

IPC50

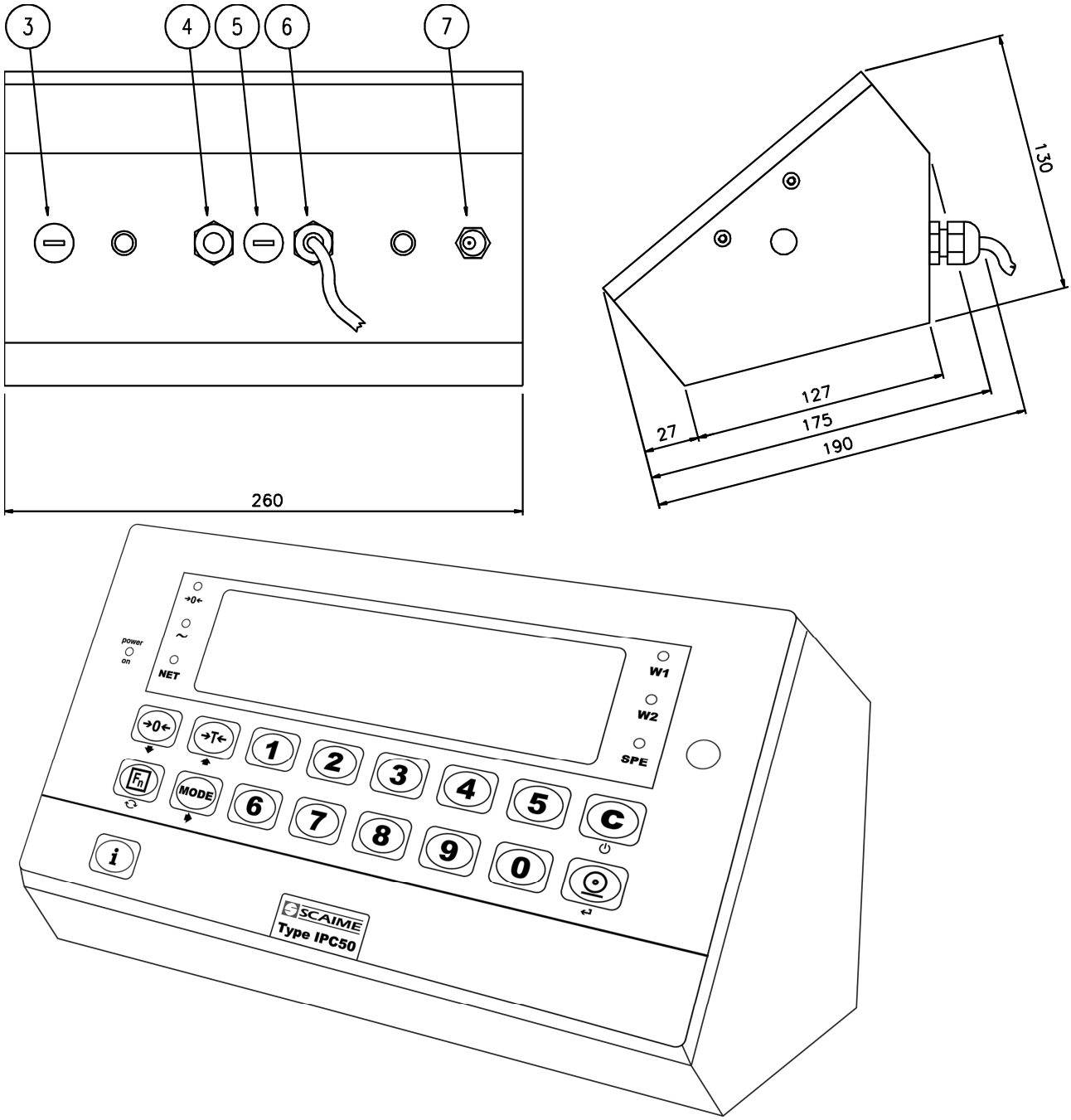


FIGURE 1 (Measurements in mm)

1) Protection seal (only in legal for trade version)
3) Extra hole for user's options
4) RS232 connection
5) Available
6) Connection to load cell(s)
7) Entry for 12V dc power supply

VERSION FOR PANEL MOUNTING

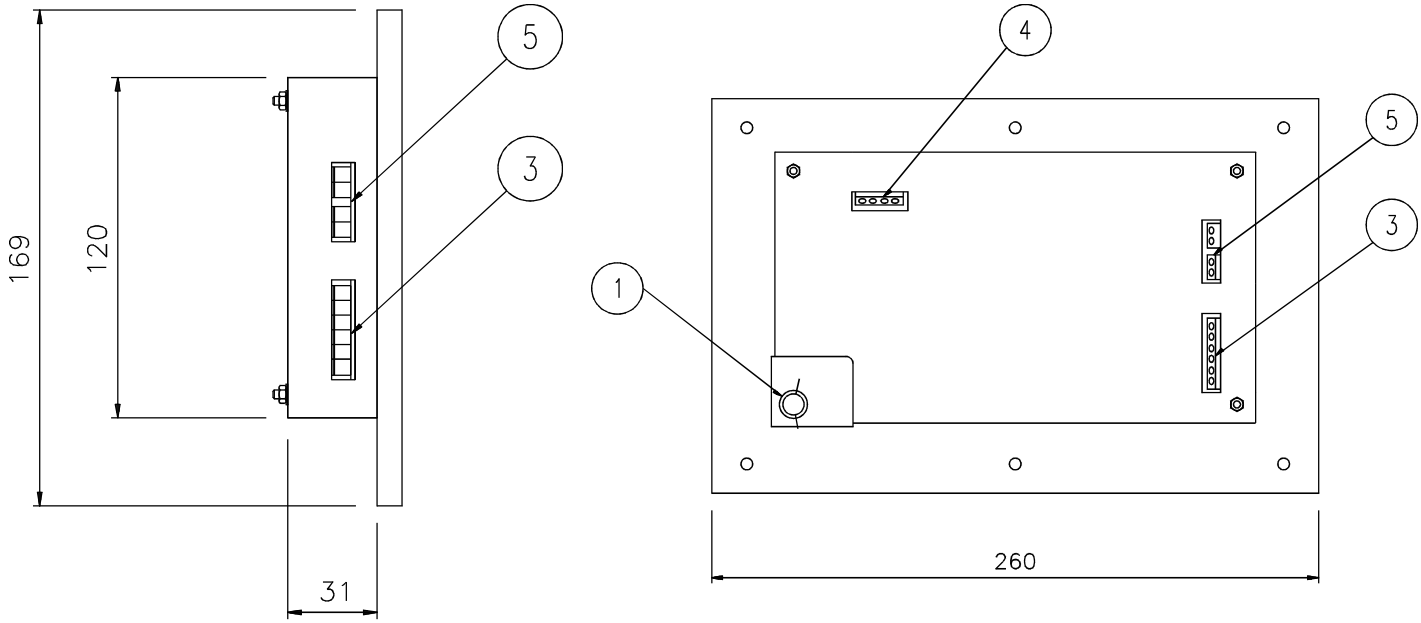
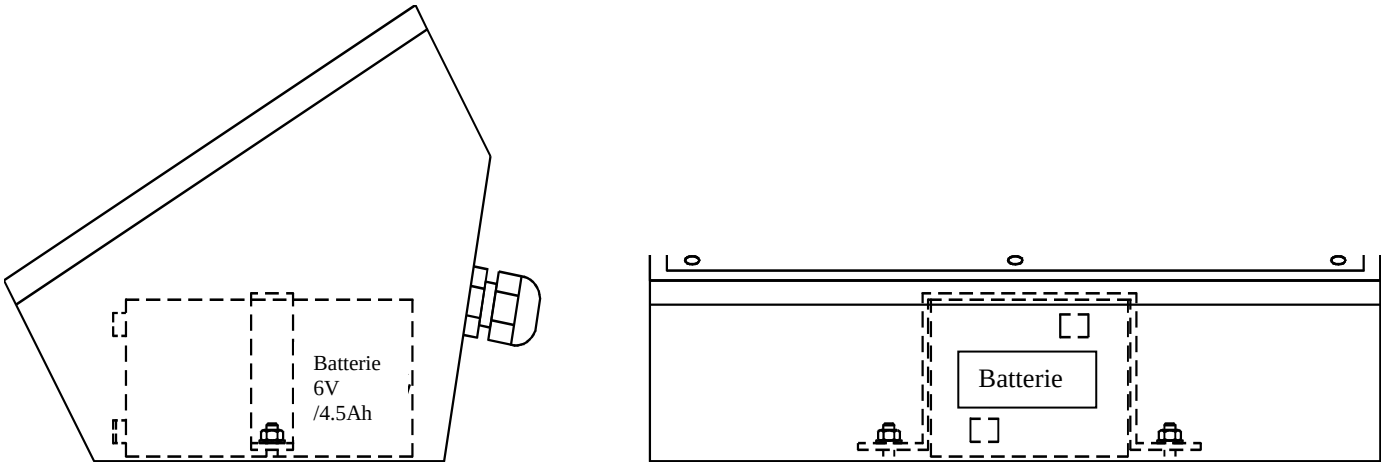


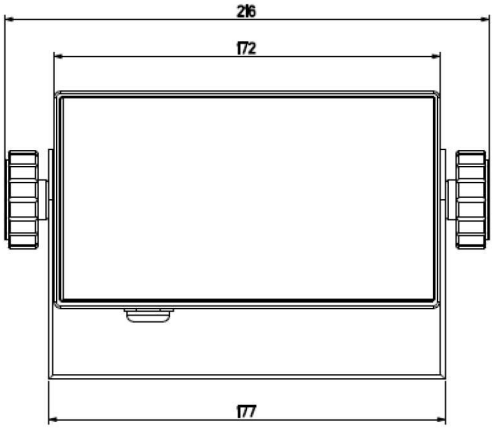
FIGURE 2 (Measurements in mm)

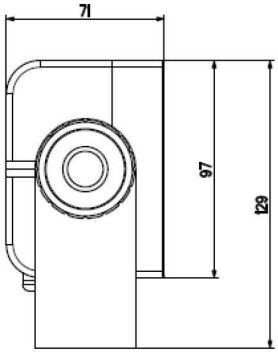
1 Protection seal (only in the legal for trade version)
3 Load cell/s input
4 serial output
5 12 Vdc power supply input
H Sensor for infrared remote control (optional)

OPTION : battery 6V / 4.5Ah
The battery will be automaticly powered if the IPC50 is powered by external tension.



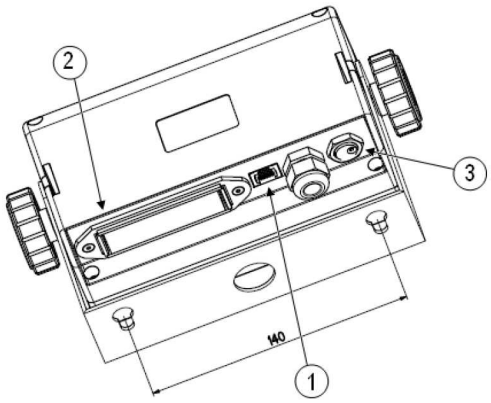
IPC 20



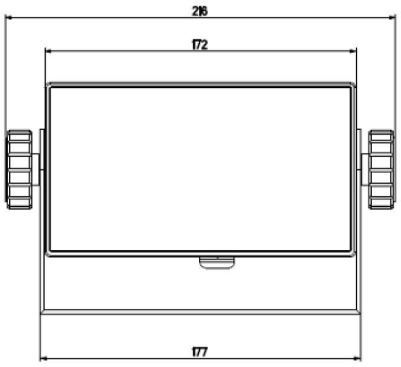


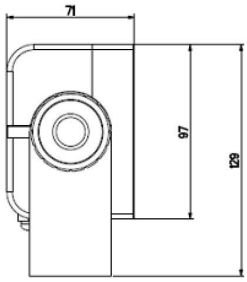
IPC20 STD

Powered with 4 battery AA



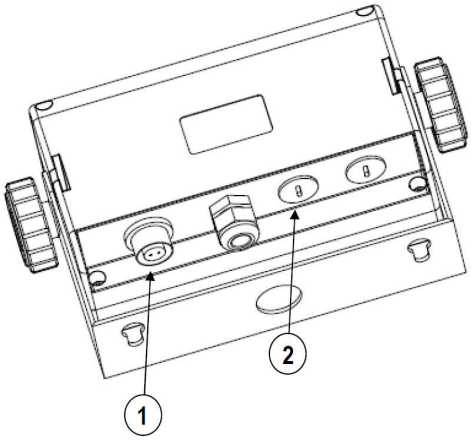
1 connection RS232
2 (4) battery AA
3 Power supply 5 to 12VCC





IPC20 IND

Rechargeable battery



1 Power supply 5 to 12VCC
2 connection RS232

5 POWER SUPPLY & START UP

The instruments serie IPC50 are normally charged with a 12 Vdc tension supplied from an AC/DC external charger (supplied) which should be connected to the 220 Vac mains voltage. Safety norms must be respected for the connection to the mains voltage including the use of a line which has to be free from noise generated by other electronic equipment.

It is also possible to charge through a rechargeable built-in or external battery (optional) depending on the instrument model. The battery lifetime is 40 hours (max.) when used with 1 load cell, and 24 hours (max.) if connected to 4 load cells.

To recharge completely the battery it is necessary to connect the AC/DC mains adapter for about 12 hours (see the LOW BATTERY LEVEL INDICATION paragraph in the IPC& IPC basic functions section).

NOTE: ***With the battery option it is advisable to completely recharge it (12 hours) in the first installation of the instrument; we RECOMMEND disconnecting the battery if the instrument is not going to be used for more than 30 days.***

BATTERY CHARACTERISTICS

Material :Lead , 6V / 4,5Ah (IPC50)

THE BATTERY MUST ONLY BE REPLACED WITH AN ORIGINAL FROM THE MANUFACTURER.

In order **TO CHARGE** the instrument through the 220Vac mains, one should insert the plug end of the AC/DC power adapter into the socket or terminal board in the back of the instrument – (chapter 4 “INSTALLATION”-7 in figure 1 or 5 in figure 2 - and the charger to your 220Vac source.

If the instrument has been charged correctly, on the left side of the display’s front panel the **power-on** led turns on (item 3 of figures 3 and 4).

Do not connect other equipment to the same socket as the one that the adapter is in.

Do not step on or crush the power supply cable

TO TURN ON the instrument Press the C key until the LCD display turns on; then release.

The display shows in sequence (if the device has not been calibrated, the message Err 39 or no CAL is shown, see page 64):

XX.YY is the installed software version

Bt X or **PoWEr** in which X is a number from 0 to 9 which indicates the battery level.
If the instrument is powered by the mains, the message **"PoWEr"** is displayed.

After the display shows the weight on the system if the system has already calibrated.

To show the instrument type (02) and the metrological software version (01) and for access to the configuration steps, you must press the key ->0<- when the installed software version is shown.

02.01 in which 02 indicates the instrument type, 01 indicates the metrological software version.

XX.YY.ZZ is the installed software version.

DFW06 is the name of the installed software.

CLoCK if the there is the optional board with date and time.

bt X in which X is a number from 0 to 9 which indicates the battery level.
If the instrument is powered by the mains, the message **"PoWEr"** is displayed.

-K- X.YY in which K identifies the type of keyboard: K=0, 5-key keyboard, K=1, 17-key keyboard.
X.YY is the installed software version.

After this, the programmed capacity and minimum division are displayed; then the instrument executes a countdown (self-check) and finally “hi rES” is displayed (in case of non approved instrument) or “LEGAL” and the calibration area (in case of approved instrument).

The indicator has an “auto zero at start-up” function: in other words it means that if at start-up a weight within +/- 10% of the capacity is detected, it will be zeroed; if the weight is not within this tolerance, with a non approved instrument the display shows the present weight after a few instants, while with an approved instrument “ZerO” is shown continuously on the display, until the weight does not re-enter within this tolerance; the auto zero function at start-up may be disabled in the set-up environment (only with non approved instrument); see **SEtuP >> ConFiG >> Param. >> Auto-0**

TO TURN OFF the instrument keep the C key pressed until the - OFF – message appears on the display; then release the key.

6 IPC50 FRONT PANEL KEYS AND INDICATORS

The front panel of the indicator is designed for quick but simple weighing applications. It consists of an LCD display with 6 digits 25 mm in height with a water-proof film keyboard with 17 numeric and function keys.
If the indicator has and LCD display, while weighing various multifunction symbols indicating the functioning status will turn on (see section 8 “SYMBOLS ON THE LCD DISPLAY”).

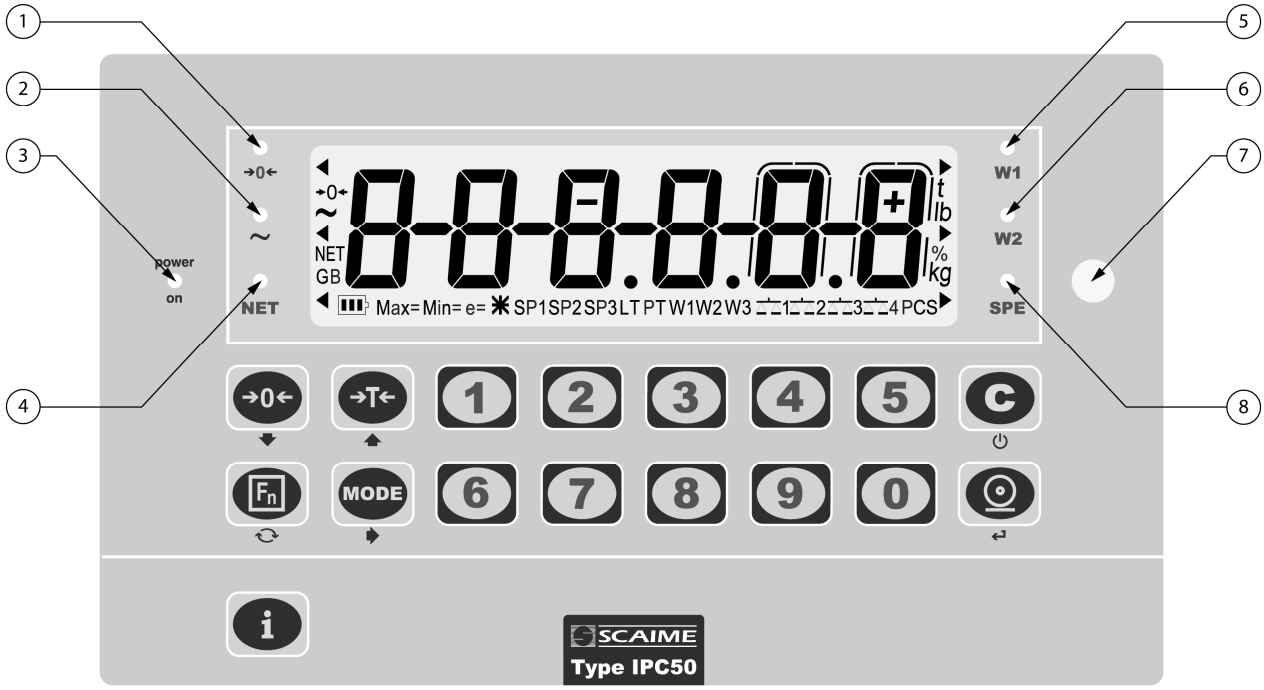


FIGURE 4

1 indicates that the weight detected by the weighing system is close to zero, within ±1/4 of the division.

2 indicates that the weight is unstable.

3 indicates the presence of the power supply

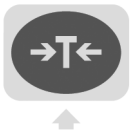
4 NET indicates that the displayed value is a net weight.

5 indicates the unit of measure in use and that it is within the first weighing range.

6 indicates the unit of measure in use and that it is within the second weighing range.

7 Sensor for the reception of the infrared signal (optional).

8 indicates that a specific function of the indicator is active.

SCALE KEY	FUNCTION
	- Zeros the displayed gross weight, if is within +/- 2% of the total capacity. - Cancels the negative tare value.
	- If pressed for an instant it carries out the semiautomatic tare. - If pressed at length it allows entering the manual tare from keyboard. - Cancels the negative tare value. - In the numeric input phase it increases the digit to be modified.
	- It carries out a specific function of the operating mode set in the set-up environment. - In the numeric input phase it selects the digit to be modified, from left to right.
	- It carries out a specific function of the operating mode set in the set-up environment. - In the numeric input phase, it confirms the entry made. - In the SET-UP, it allows to enter a step or to confirm a parameter within a step. - It transmits the data from the serial port dedicated to the printer.
	- It turns the instrument on and off. - In the numeric input phase, it quickly zeros the present value. - In the set-up environment, it allows to exit a step without confirming the change made.
	- It allows to select the desired function; see section 10 “ADDITIONAL FUNCTIONS OF THE IPC50”.
	- Allows to view the scale’s metric information: capacity, division, minimum weigh for each configured range.
	- In the numeric input phase it allows to enter the desired value.

IPC50 only

7 SYMBOLS ON THE LCD DISPLAY

The LCD display has symbols which show the indicator's functioning status; you will find the description for each symbol below.

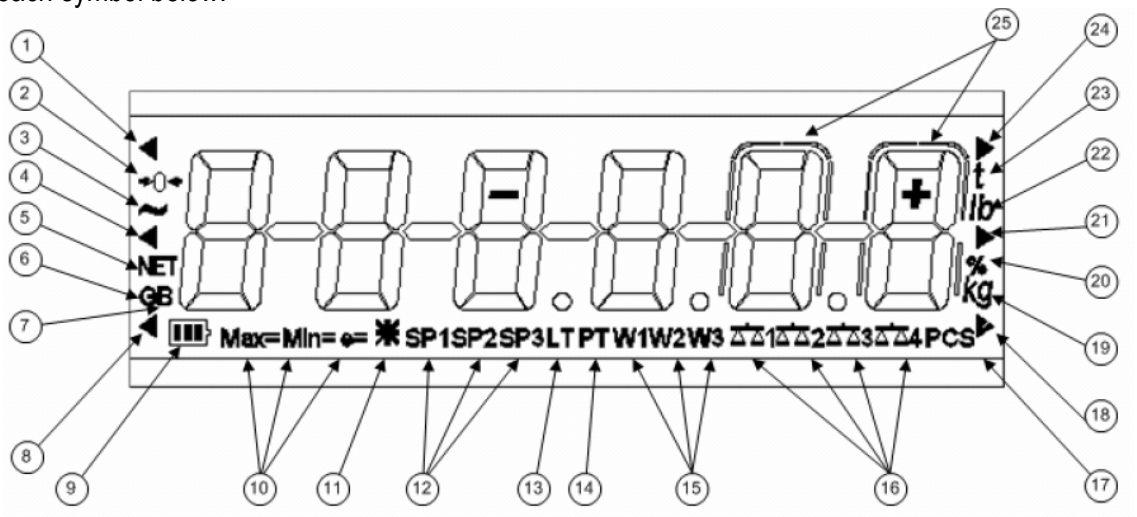


FIGURE 5

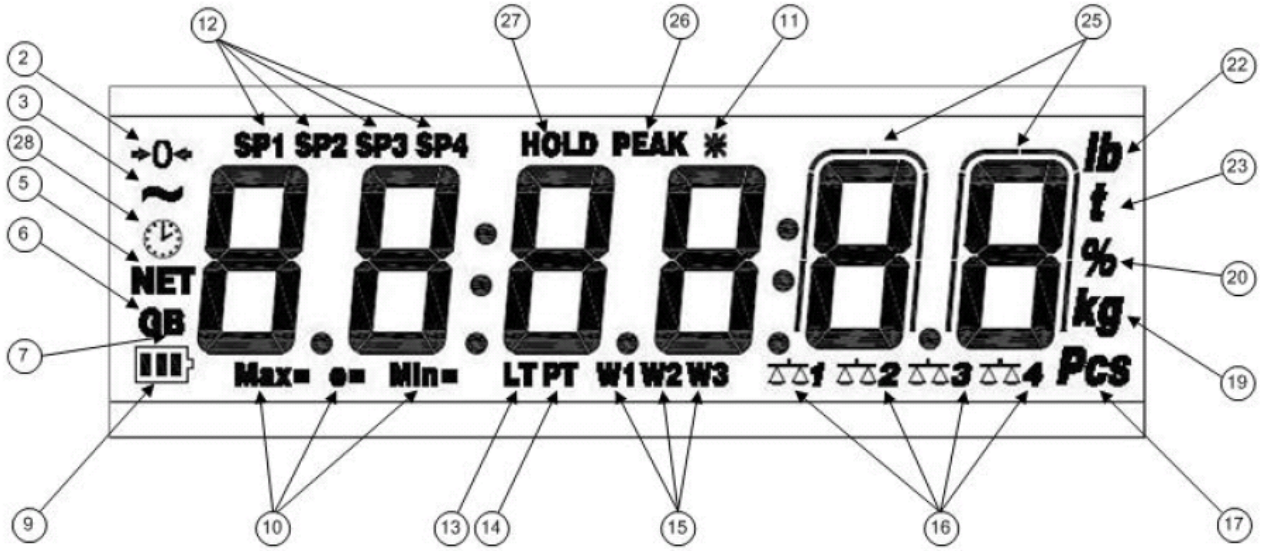
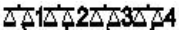
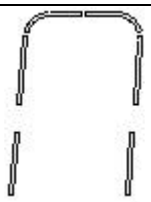


FIGURE 6

NUMBER	SYMBOL	FUNCTION
(1), (4), (8), (18), (21), (24)	◄ ►	When on and blinking, these indicate a pause status: the indicator carries out a function
(2)	→0←	Indicates that the weight detected on the weighing system is near zero, within the interval of –1/4 to +1/4 of the division.
(3)	~	Indicates that the weight is unstable.
(5)	**NET**	Indicates that the displayed weight is a net weight.
(6)	**G**	Indicates that the displayed value is a gross weight
(7)	**B**	Indicates that the displayed value is a gross weight, if the German language is selected in the print configuration

(9)		Indicates the battery charge level: - 3 notches (corresponding to the bt 8, bt 9 values) - 2 notches (corresponding to the bt 6, bt 7 values) - 1 notch (corresponding to the bt 3, bt 4, bt 5 values) - 0 notches (corresponding to the bt 0, bt 1, bt 2 values)
(10)	**MAX=** **MIN=** **e=**	When viewing the metric information, it identifies the indicated capacity range. When viewing the metric information, it identifies the indicated minimum weigh range. When viewing the metric information, it identifies the indicated division range
(11)	*****	Indicates that a specific function of the indicator is active.
(12)	**SP1** **SP2** **SP3**	Indicates that the relay nr. 1 (optional) has been enabled. Indicates that the relay nr. 2 (optional) has been enabled. Not used
(13)	**LT**	Indicates that a locked tare is enabled
(14)	**PT**	Indicates that a manual tare is active.
(15)	**W1** **W2** **W3**	Indicates that the instrument is in the first weighing range. Indicates that the instrument is in the second weighing range. Indicates that the instrument is in the third weighing range.
(16)		Indicate the number of the scale being displayed, when in the REPEATER IN RADIO FREQUENCY functioning mode. In the other functioning modes scale nr. 1 is always shown.
(17)	**PCS**	Indicates the sample number of pieces is being displayed.
(19)	**kg**	Indicates the unit of measure in use (kilogram).
(20)	**%**	Indicates the percentage of data transmitted / received during the transmission / reception of the SET-UP through the PC serial line.
(22)	**LB**	Indicates the unit of measure in use (pounds)
(23)	**t**	Indicates the unit of measure in use (tons).
(25)		- this is displayed around the last digit on the right, when viewing the weight x 10.
(26)	**PEAK**	Indicates that the PEAK function is enabled
(27)	**HOLD**	Indicated that the HOLD function is enabled
(28)		Indicated the time is being shown on the display, in the "HH:MM:SS" format

8 BASIC FUNCTIONS

Nota : if the IPC has never calibrated, the message “Err 39 or no CAL” will be displayed (see page 64)

With "SETUP ENVIRONMENT" we intend a specific menu, inside which it’s possible to set all the functioning parameters of the IPC.
To enter it, turn on the IPC (C key) and press the ->0<- key when the version software is shown (XX.YY) the display shows :
02.01 the instrument type and the metrological software version, then **XX.YY.ZZ** is the installed software version, then **DFW06** is the name of the installed software, then **CIoCK** if there is the optional board with date and time, then **bt X** in which X is a number from 0 to 9 which indicates the battery level or If the instrument is powered by the mains, the message **"PoWEr"** is displayed, then **-K- X.YY** in which K identifies the type of keyboard: K=0, 5-key keyboard, K=1, 17-key keyboard and X.YY is the installed software version, then the auto test (99999; 88888….), press the key ->T<- during this test.
The indicator shows the first parameter “TyPE”.

8.1 ZERO SCALE

By pressing the ->0<- key, it is possible to zero a gross weight value which is within +/- 2% of the capacity; after the zeroing, the display shows 0 weight and the relative pilot lights are turned on.

8.2 TARE OPERATIONS

SEMI-AUTOMATIC TARE

By pressing the ->T<- key any weight value present on the display is tarred: the display shows **“tArE”** for an instant and then 0 (net weight); the relative keys turn on.
In any case a new tare operation cancels and substitutes the previous one.
NOTE: The semiautomatic tare will be acquire only if the weight is AT LEAST A DIVISION, STABLE (instability **~** led off) and VALID (in other words, the OVERLOAD condition should not be created).

ENTERING THE MANUAL TARE FROM KEYBOARD

Press ->T<- for a few seconds: the display shows “– tM –“ and then *"000000"*. Enter the desired value using the following keys:

->0<- decreases the blinking digit.
->T<- increases the blinking digit.
MODE selects the digit to be modified (blinking); the scrolling of the digits takes place from left to right.
C if pressed for an instant it quickly zeros the present value; if pressed at length it allows to return to weighing without saving the changes made.
NOTE: With the IPC50 one enters the value directly with the numeric keyboard

Confirm with the ENTER key; the value will be subtracted from the weight present on the plate and the relative pilot lights will turn on.
If the entered value is not a multiple of the scale’s minimum division, it will be rounded up if it is equal or greater than half of the division, or rounded down if lower.
In any case a new tare operation cancels and substitutes the preceding one.

CANCELLING A TARE

One can manually cancel the tare value in different ways:
- unload the scale and press the ->0<- ou ->T<- key**.**
- carry out the tares in deduction, partially unloading the scale and pressing ->T<- to zero the display.
- press C without unloading the scale.
- enter a manual tare equal to 0.

NOTE: it is possible to automatically cancel the tare value; see the section "LOCKED/UNLOCKED/DISABLED TARE SELECTION".

SELECTION OF LOCKED/UNLOCKED/DISABLED TARE

Normally, when a tare value is entered (automatic, manual, or from storage) by unloading the scale plate, the display shows the tare value with a negative sign (LOCKED TARE). For one's convenience it is also possible to choose that the tare value cancels itself automatically each time that the scale is unloaded (UNLOCKED TARE); or disable the tare functions.

With the UNLOCKED tare:

In case of SEMIAUTOMATIC TARE the net weight, before unloading the scale, may also be 0.

In case of MANUAL TARE or FROM DATABASE the net weight before unloading the scale must be of at least 2 stable divisions.

To set the type of tare:

- Turn on the indicator, press the ->0<- or ->T<- key during the countdown (the display shows the "FmodE" menu).
- Press ENTER to enter the menu.
- Press ->0<- many times (to scroll ahead through the parameters) or ->T<- (to scroll backwards) until one finds the "tArE t" parameter.
- Press ENTER to enter the parameter.
- With the ->0<- or ->T<- keys select the possible options: "LoCK" (locked tare), "unLoCK" (unlocked tare), diSAb (disabled tare).
- Confirm with ENTER
- Press the C key many times until the display shows the message "SAVE?".

Press ENTER to confirm the changes made or another key for not saving.

In the IPC50, it is possible to carry out the selection also during the weighing if the tare has not been disabled, by pressing in sequence the **"F"+ "2"** keys: the display shows *"tA-L"* = BLOCKED TARE is selected; by pressing the same keys again the display shows *"tA-U"* = UNBLOCKED TARE is selected. The indicator stores the last selection made, also after it is turned off.

8.3 LIMITATION OF THE TARE FUNCTIONS

- With a non approved instrument, the tare operations are unlimited, in other words, these are always active.

The same operations may be executed with an approved instrument, if one selects: **SEtuP >> d.SALE >> no.**

- With approved instrument, it is possible to limit the tare functions, selecting: **SEtuP >> d.SALE >> yES** .
- the tare operations will have the following specifications:

SCALE CAPACITY	FUNCTIONING
< 100kg	All the tare functions are disabled
≥ 100kg	- The SEMIAUTOMATIC TARE value can not be modified with a manual tare or from database. - The manual tare or from database can be entered or modified only with an UNLOADED scale.

With approved instrument, the **d.SALE** step is not displayed.

8.4 AUTO POWER OFF FUNCTION

It is possible to automatically turn off the indicator (from 1 to 255 minutes), or disable it; the auto power off takes place when, **with unloaded scale,** or a key has not been pressed for the time set: the display shows the "- oFF – " blinking message and an acoustic signal is emitted; after this the indicator turns off.

For the setting, follow the procedures below:

- Turn on the scale, press the ->0<- or ->T<- key during the countdown (the display shows the “FmodE” menu).
- Press ENTER to enter the menu.
- Press ->0<- many times (to scroll ahead through the parameters) or ->T<- (to scroll backwards) until one finds the “AutoFF” parameter.
- Press ENTER to enter the parameter.
- With the ->0<- or ->T<- keys select the possible options: “diSAb” (auto switch-off disabled), “EnAb” (auto switch-off enabled).
- Confirm with ENTER if “EnAb” has been selected, one will be asked to enter the number of minutes after which the indicator should turn off: enter a number between 1 and 255 (using the MODE key to select the digit to be modified and ZERO/TARE to decrease/increase it) and confirm with ENTER
- Press many times the C key until the display shows “SAVE?”.

Press ENTER to confirm the changes made or another key for not saving.

8.5 LOW BATTERY WARNING

The indicator is able to recognize whether it is powered from the mains or through a battery; in this last case the battery charge level (from “bt 9” to “bt 0”) is shown when the indicator is turned on.
If the indicator has the LCD display the battery symbol ( ) is always displayed indicating its charge level:

- battery is charged
- Battery is partially charged
- Battery is discharged

Recharging phase → → → → …

While recharging, the instrument can be used as usual.
NOTE: the instrument automatically turns off when the voltage goes below 5,8V.

8.6 "TILT" DEVICE

The TILT is a device which inhibits the indicator’s weighing system and starts working when the instrument’s inclination is greater than 2% for the pallet truck application or 5% for application on lift trucks.
Central dashes are shown on the LED display, and at regular intervals of about 5 seconds, an error sound signal is emitted.
The activation of the tilt alarm has a delay of about three seconds from the detection of the exceeding inclination.

8.7 MULTI RANGE FUNCTIONING (for legal for trade approved instruments)

The multi range functioning allows to subdivide the scale capacity in two or three ranges, each which is up to 3000 divisions, improving in this way the first range division in the dual range and the first two ranges in the triple range.
For example, with a 10 kg cell platform it is possible to approve the weighing system with:

- A single range: 6 kg capacity and 2 g division (3000 div.).
- Dual range: 6 / 3 kg capacity and 2/1 g division (3000 + 3000 div.).
- Triple range: 6 / 3 /1,5 kg capacity and 2/1/0,5 g division (3000 + 3000 + 3000 div.).

NOTE: For the approval of the weighing system in dual and triple range the cell must have better technical features in comparison to the cell used for the approval in a single range.
The multirange functioning is shown by the turning on of the relative LED which identifies the range in which one is operating; by passing to the second range, the second range division is enabled; by passing to the third range, the third range division is enabled. At this point the first range division is restored **only by passing by the gross zero of the scale.**
NOTE: The selection of the range number with multirange functioning is made during the indicator’s calibration

8.8 REMOTE CONTROL (OPTIONAL)

If the instrument has been furnished with the infrared ray interface, with the remote control it is possible to remotely use the ZERO, TARE, MODE, ENTER keys or just the TARE key. To choose which type of functioning follow the below procedure:

- Turn on the scale; press the ->0<- or ->T<- key during the countdown (the display shows the “FmodE” menu).
- Press ENTER to enter the menu.
- Press ->0<- many times (to scroll forwards through the parameters) or ->T<- (to scroll backwards) until one finds the “irConF” parameter.
- Press ENTER to enter the parameter.
- With the ->0<- or ->T<- keys select the possible options: “ir no” (disabled remote control), “ir 1” (all the remote control keys function as the TARE key) or “ir 4” (the remote control keys functions as ZERO, TARE, MODE and ENTER/PRINT). Confirm with ENTER.
- Press the C key many times until the message “SAVE?” appears on the display.

Press ENTER to confirm the changes made or another key to not save.

8.9 DATE/TIME ADJUSTMENT (OPTIONAL)

The indicator can be fitted with the date/time option; in this case, the “CLoCK” message is shown when instrument is turned on.

To set the date/time follow the procedure below:

- Turn on the scale, press the ->0<- or ->T<- key during the countdown (the display shows the “FmodE” menu).
- Press ENTER to enter the menu.
- Press ->0<- many times (to scroll forwards through the parameters) or ->T<- (to scroll backwards) to find the “CLoCK” parameter.
- Confirm with ENTER/PRINT: in this order one will be asked to enter the day, month, year, hour, and minutes. The entry of each parameter must be confirmed with ENTER
- Press the C key many times until the message “SAVE?” appears on the display.
- Press ENTER to confirm the changes made or another key to not save.
- It is possible to programme the date and time during the weighing, pressing in sequence the F and 8 keys.
- **The “CLoCK” parameter is not displayed if there is no date/time option.**

8.10 “SCREEN SAVER” FUNCTION (OPTIONAL)

If the indicator is fitted with the date/time function, it is possible to enable the “Screen Saver”: after a programmable time (from 1 to 255 minutes) with the scale unloaded, the time is shown on the display, in the “HH-MM.SS” format. As soon as a weight variation is detected, or a key is pressed, the indicator returns to viewing the current weight.

To set the function:

- Turn on the scale, press the ->0<- or ->T<- key during the countdown (the display shows the “FmodE” menu).
- Press ENTER to enter the menu.
- Press ->0<- many times (to scroll forwards through the parameters) or ->T<- (to scroll backwards) to find the “SCr.SAV” parameter.
- Press ENTER to enter the parameter.
- With the ->0<- or ->T<- key select the possible options: “no” (disabled), “YES” (enabled).
- Confirm with ENTER if one has selected “YES”, one is asked to enter the number of minutes after which the indicator should show the time: enter a number between 1 and 255 (using the MODE key to select the digit to be modified and the ZERO/TARE keys to decrease/increase it) and confirm with ENTER
- Press the C key many times until the display shows the message “SAVE?”.
- Press ENTER to confirm the changes made or another key to not save.

NOTE: the “SCr.SAV” parameter is not shown if there is no date/time option.

8.11 PRINTING

If a printer is connected, it is possible to print the programmed weight data, for example:
- 4 heading lines of 24 characters
- GROSS weight
- TARE weight
- NET weight
- ticket number
- date and time (optional)
- a CODE 39 bar code (both with the LP542PLUS labeller as well as the TP thermal printer).

Besides the generic printing described above, each single functioning mode will have some specific printouts, which are described in the operating mode.

Executing printouts with NON approved scales.

In order to print with non approved scales the following conditions must exist:
- The weight must be stable;
- The gross weight must be >= of a division;

Legal for Trade scale printing.

In order to be able to print with a legal for trade scale the following conditions must exist:
- The weight must be stable;
- The net weight must be >= the minimum weight (minimum of 20 divisions).
- The printing is reactivated depending on how the “rEACT” parameter has been set in the set-up environment: passage by zero of the NET weight, weight instability, or always (see section 9.11 “REACTIVATION OF THE PRINTOUTS AND OF THE INDICATOR FUNCTIONS”).

To configure the printouts, go to the “PROGRAMMING THE PRINTOUTS”

8.12 REENABLING THE PRINTOUTS AND THE INDICATOR FUNCTIONS

While using the indicator, it is possible to incur into the “**no.0.unS”** error shown on the display along with an acoustic signal; this means that the printing or the function which one wants to carry out must be reenabled (in order to avoid unwanted executions).

It is possible to set the reenabling in different ways: “passage by zero of the net weight”, “weigh instability” or “always”. Follow the procedure below:
- Turn on the scale, press the ->0<- or ->T<- key during the countdown (the display shows the “FmodE” menu).
- Press ENTER to enter the menu.
- Press ->0<- many times (to scroll forwards through the parameters) or ->T<- (to scroll backwards) until one finds the “rEACt” parameter.
- Press ENTER to enter the parameter.
- With the ->0<- or ->T<- keys select the possible options: “ZEro” (passage by zero of the net weight), “inSt” (instability), ALWAyS.
- Confirm with ENTER
- Press the C key many times until the message “SAVE?” is shown on the display.
- Press ENTER to confirm the changes made or another key to not save.

8.13 DISPLAY OF METRIC DATA (i) IPC50 only

The indicator is fitted with a function named “INFO”, thanks to which it is possible to view the configuration metric data:
- First range capacity, first range minimum weigh, first range division.
- Second range capacity, second range minimum weigh, second range division.
- Third range capacity, third range minimum weigh, third range division.

NOTES:
- The minimum weigh corresponds to 20 net weight divisions.
- The data of the second and third range appear only if actually configured.

To view the metric data:
Press the dedicated key once
- The capacity value of the first range will appear.
- Press the ->0<- key to scroll the following data, in this order:
  Capacity 1° range ⇨ Minimum weigh 1° range ⇨ Division 1° range ⇨ Capacity 2° range ⇨ Minimum weigh 2° range ⇨ Division 2° range ⇨ Capacity 3° range ⇨ Minimum weigh 3° range ⇨ Division 3° range ⇨ Capacity 1° range ⇨……
- Press the TARE key to scroll backwards the metric data.
- Press the ENTER or C key to return to weighing.

9 IPC50 ADDITIONAL FUNCTIONS

9.1 STORED TARE MEMORY VALUES

It's possible to store up to **10 tare memory values,** identified by the location numbers 0 to 9, which the user can recall when needed.
To insert or modify a tare value:
- press the keys "**Fn**"**+** "**9**" in sequence - the display will indicate *tM n.* in which *n* is the storage number to be entered. For example, by pressing "**0**"; the display will indicate *"00000"* or any value that already exists in the tare memory location "0."
- Insert the tare value with the numeric keyboard (with the **C** key one quickly zeros the entered value) and press **ENTER**
- Repeat the sequence for the following memory positions.

If the entered value is not a multiple of the scale's minimum division, it will be rounded down if equal or greater than half of the division, and rounded up if less.

RECALLING STORED ARE VALUES

To recall a stored value:
- press the keys "**Fn**" **+** "**1**" in sequence. The display will indicate *"tP n."* in which *n* is the storage number to be entered.

Press the key (0 - 9) corresponding to the desired tare value location in memory; the tare will be enabled.

9.2 ENTERING THE IDENTIFICATION CODE

It is possible to insert 2 numerical codes of up to 10 digits in length (maximum) to use as a reference during printing:
- Press the "**Fn**"+ "**3**" keys in sequence. The display will indicate "Id n" in which n identifies the code number which one wants to enter.
- Press 1 or 2: the display will show *00000* or the last entered value.
- Enter the code through the numeric keyboard and confirm with ENTER or press C to exit without saving the modifications. While entering, just the last 6 digits entered will be displayed; in any case it is possible to scroll all the digits using the MODE key.

After its entry, the code will automatically be printed with its abbreviation (ID1 or ID2) in each printing that will be made. It is also possible to set the automatic cancellation of the code after the printing made (see the following paragraph).
In any case**, the stored codes are cancelled when the instrument is turned off**.
NOTES:

- The values between 0'000'000'001 and 9'999'999'999 are valid; by entering 0'000'000'000 the code is cancelled.
- In the TOTALIZER functioning mode, the codes will be printed only in the printing of the total.

LOCKED / UNLOCKED CODE SELECTION

Normally the code is LOCKED, in other words once it is set it remains stored (and therefore printed) until it is cancelled or until the instrument is turned off. In any case it is possible to make it so the code is cancelled as soon as it is printed (UNLOCKED CODE).

- Press the keys "**Fn**" + "**4**" in sequence; the display indicates "MId n".
- Press "1"; the display indicates "Id1 U" = CODE 1 UNLOCKED.
- Press the same keys again: the display indicates "*Id1 L"* = CODE 1 LOCKED.
- Repeat the same operations for CODE 2.

KEYBOARD LOCK (Lck.kEy)

It is possible to disable the keyboard functions (except for the C key for turning on and off) in order to avoid accidental pressing of the keys:
The keyboard can be disabled/enabled by setting the corresponding parameter in the F.ModE >> LCk.kEy step of the setup environment, if the "on" parameter is selected in the this step, after 15 seconds of keyboard inactivity in the weighing phase, the keyboard is locked (the "LoC.kEy" message is displayed).
In this case it's only possible to turn off the instrument by pressing the C key for about 10 seconds, and turn on the instrument.
By pressing the ZERO then ENTER/PRINT keys in succession, the keyboard is unlocked (the "unL.kEy" message is displayed). If instead a different key is pressed, the message "PrESS ZEro to unLoCk" is displayed; when the ZERO key is pressed, the message "noW PrESS Print to unLoCk" is displayed.
NOTE: (IPC50 only) The keyboard may be disabled also by closing an input, if programmed, of the optional expansion board: refer to the "inPutS" parameter of the set-up environment; in this case however by pressing a key, the message "LoCkEd" does not appear on the display.

10 SELECTABLE OPERATING MODES

In addition to the STANDARD weighing mode with TARE deduction and transmission of data, the indicator can carry out one of the following functions:
kg/lb CONVERSION, NET/GROSS SWITCH, SET POINT ON THE GROSS WEIGHT, SET POINT ON THE NET WEIGHT, IN/OUT, REPEATER IN RADIO FREQUENCY, ALIBI, DISPLAY WITH SENSITIVITY X 10, HOLD, PEAK, HORIZONTAL TOTALIZER, VERTICAL TOTALIZER, and PIECE COUNTING.

To set the operating mode, carry out the following procedures:
Turn on the IPC (C key) and press the ->0<- key when the version software is shown (XX.YY) the display shows :
03.01 the instrument type and the metrological software version, then **XX.YY.ZZ** is the installed software version, then **DFW06** is the name of the installed software, then **CIoCK** if there is the optional board with date and time, then **bt X** in which X is a number in percentage which indicates the battery level or If the instrument is powered by the mains, the message **"PoWEr"** is displayed, then **-K- X.YY** in which K identifies the type of keyboard: K=0, 5-key keyboard, K=1, 17-key keyboard and X.YY is the installed software version, then the auto test (99999; 88888….), press the key ->T<- during this test.
The indicator shows the first parameter "TyPE".
Press the ->0<- key the display shows the "FmodE" menu.
Press ENTER to enter the menu (the display shows the "FunCt" menu).
Press ENTER to enter the parameter.
With the ->0<- or ->T<- keys select the possible options:

Std	kg / lb conversion
ntGS	net weight / gross weight conversion
StPG	Set point on the GROSS weight
StPn	Set point on the NET weight
inout	Input / output weighing
ALibi	Alibi memory / DSD (option)
ChECK	Tolerance Check
PerC	non available
UiSS	Sensitivity (x10)
hLd	Hold
PEAK	Peak detector
tot o	Horizontal totalizer
tot S	Vertical totalizer
Coun	Counting

- Confirm with ENTER if one has selected the inout, MAStEr, tot or, tot S or Coun mode, one will be asked to select another operating parameter; refer to the specific functioning mode section for the relative description.
- Once the functioning mode is selected, one is asked to enable the standard printouts: the “dEF.Pr?” message appears on the display: press ENTER to enable the printouts and C to exit without making any modifications.
- The instrument automatically goes to the following step.
- Press many times the C key until the display shows the message “SAVE?”.
- Press ENTER to confirm the changes made or another key to not save.

10.1 kg/lb CONVERSION (Std)

By pressing "MODE" key the value is converted from kg to lb and vice versa.

NOTES:

- With APPROVED instrument in single range the weight in pounds is displayed for 5 seconds, after which the display goes to kilograms. During the viewing in pounds it is not possible to print the weight (when pressing ENTER the message “ConV” is shown and an acoustic signal is emitted).

10.2 NET/GROSS SWITCH (ntgS)

If a tare is set by pressing the MODE key, for about 3 seconds interval, the gross weight is displayed.

NOTE: While the gross weight is being viewed it is not possible to print.

10.3 SET POINT ON THE GROSS WEIGHT (StPG) – card option IPC50

By selecting this functioning mode, in the normal scale status, one enables the function of the relays on the GROSS weight; with the optional boards, it is possible to use 2 relays (only IPC50).

In the outPut menu of the SET-UP environment, one sets the functioning mode for each relay used: none, with hysteresis (enabling and disabling set point) without hysteresis (single set point).

Furthermore it is possible to set the status of the relays (normally open or normally closed), or the type of check (direct or weight stability).

MODE WITH HYSTERESIS

One enters two SET POINTS for each relay: a DISABLING one, which, when the gross weight is lower than it, it disables the concerned relay; and an ENABLING one, which, when the gross weight is equal or greater than it, it enables the concerned relay.

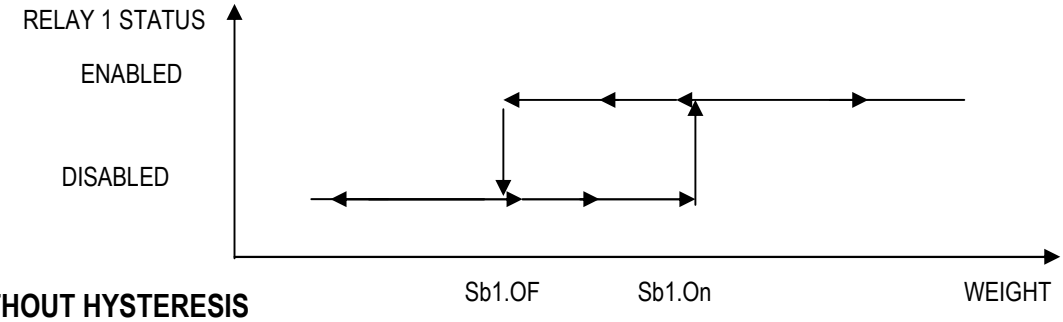
By keeping the ENTER key pressed for about 3 seconds one enters the DISABLING and ENABLING SET POINT values, only for the configured relays:

- The display shows " S1 oF " (DISABLING relay 1 SET POINT): press ENTER to enter the Step.
- Use the MODE key to choose the digit to be increased (BLINKING DIGIT), the scrolling of the digits goes from left to right.
- Decrease or increase the value using the ->0<- or ->T<- keys.

- When finished entering the values, confirm with ENTER
- The display shows " S1 on " (ENABLING relay 1 SET POINT): enter the weight value like in the preceding SET POINT and confirm with ENTER
- With the C key, one quickly zeros the set point value.
- In the same way go ahead with the "Sb2.oF", “Sb2.on”.
- Once finished the programming of the set points, one should exit with the C key to return to weighing.

NOTES

- If the relay functioning mode has not been configured, the prolonged pressure of the ENTER key **has no effect.**
- The DISABLING SET POINT must be equal or less than the ENABLING one;
  If in the DISABLING SET POINT one enters and confirms a value greater than the ENABLING one, the instrument will automatically set the same value in the ENABLING step.
  If in the ENABLING SET POINT one enters and confirms a value lower than the DISABLING one, the instrument emits an error sound; after this one sets the same DISABLING value.
- The 0 value is valid for the enabling and the disabling set points and just the set points greater or equal to zero are accepted.
- The check of the weight remains active on the present value even during the modification of the SET POINT, until the new value is confirmed.
- At start-up, the relays are managed from when the software version is displayed and these take on the configuration set in the set-up environment. These are not managed inside the set-up menu.
- The tare operations are active.



MODE WITHOUT HYSTERESIS

It is the same as the functioning mode with hysteresis, except that one enters just one SET POINT value (therefore the enabling threshold coincides with the disabling threshold).

10.4 SET POINT ON THE NET WEIGHT (StPn) – card option only IPC50

By selecting this functioning mode, in the normal scale status, one enables the function of the relays on the NET weight; the entry of the SET POINTS and the functioning notes are the same as the gross weight mode.

10.5 INPUT/OUTPUT (in out) –

Simple display functioning mode with in / out weighing function: the indicator acquires two weight values through the confirmation of the operator and calculates the difference, automatically printing the data (if the presence of a printer has been configured).
Once the in/out mode has been selected, the message “tyPE” is shown and one is asked to select with ENTER the printing mode of the acquired data:

- **G.t. gross/tare:**
  GROSS Greater weight with unit of measure
  TARE Lesser weight with unit of measure.
  NET Difference between GROSS and TARE with unit of measure
- **1st.2nd first weigh/second weigh:**
  WEIGH 2 Second weight with unit of measure.
  NET Difference without sign between WEIGH 1 and WEIGH 2 with unit of measure.

- **in.out input/output:**
  INPUT First weight with unit of measure.
  OUTPUT Second weight with unit of measure.
  NET Zero weight with unit of measure >> if WEIGH 1 = WEIGH 2

  INPUT NET >> if WEIGH 1 > WEIGH 2
  Difference without sign between INPUT and OUTPUT with unit of measure.

  OUTPUT NET >> if WEIGH 1 < WEIGH 2
  Difference without sign between INPUT and OUTPUT with unit of measure.

PROCEDURE:
- one acquires the first weight, on the display is shown " - - 1 - - -" accompanied by a prolonged beep;
- By pressing again MODE key, one acquires the second weight, and on the display is shown "- - 2 - - -" accompanied by a prolonged beep.
- **NOTE:** The acquisition of the second weight is made only if the setting of the rEACt parameter in the set-up environment has been respected (passage by zero of the weight, instability, or always); see section 9.11 "REENABLING OF THE PRINTOUTS AND THE INDICATOR FUNCTIONS".
- When the second weight is acquired, the data printout is commanded:

It is possible to interrupt the weighing cycle by pressing the C after the acquisition of the first weight: On the display the message " CLEAr " is shown accompanied by a prolonged beep. Press ENTER to confirm the cancelling of the first acquired weight or another key to not confirm.

NOTES:
The first weight is acquired if:
- With a NON APPROVED scale one has a STABLE weight and GREATER than 0.
- With an APPROVED scale one has a STABLE weight and GREATER than 20 divisions.

The second weight is acquired if:
- With a NON APPROVED scale one has a STABLE weight and GREATER than 0.
- With an APPROVED scale one has a STABLE weight and GREATER than 20 divisions.
- If the setting of the rEACt parameter in the set-up environment has been respected (passage by zero of the weight, instability, or always); see section 9.11 "REENABLING OF THE PRINTOUTS AND THE INDICATOR FUNCTIONS".
- The tare operations are DISABLED.

10.7 ALIBI MEMORY (ALibi) - option

The alibi memory allows to file the transmitted weight values in the computer for data processing and/or integration. The filed values may then be recalled from the PC serial line or directly on the indicator's display for a following check.
The storage of a weigh takes place either following the reception of the serial command or following the pressure of the ENTER key: the indicator transmits on the PC serial line the gross and tare weights and an ID which clearly identifies the weigh.
The storage of a weigh in the alibi memory is possible only if the weight is stable; (it can not be in underload or in overload) and the gross must be equal or greater than zero. In case these conditions are not respected:
_in the response to the PID serial command there will be "NO" instead of the ID;
_there is no transmission in the case that the ENTER key is pressed.
When one presses the ENTER key, the weight and the ID is transmitted and the display shows the "tr.id" message for about 2 seconds.

The ID has the following format:
<Rewriting number> — <Weigh number>

Rewriting number: number of 5 digits which may go from 00000 to 00255; it indicates the number of complete rewritings of the alibi memory.
Weigh number: number of 6 digits which may go from 00000 to 131072; it indicates the weigh number in the current rewriting of the alibi memory

With each storage the weigh number is increased of 000001; when this reaches the 131072 value, it restarts from 000000 and the rewriting number increases of 00001.

Example:
If the stored weigh is the following:
"PIDST,1, 1.000kg, 1.000kg,00126-131072"

and the following will be:
"PIDST,1, 1.000kg, 1.000kg,00127-000000"

The storage of a weigh is possible only if the weight is stable, valid (in other words not in underload nor in overload) and if the gross weight is equal or greater than zero. If these conditions are not respected:
- In the response to the PID serial command one has "NO" in the place of the ID.
- There is no transmission if ENTER has been pressed.

When the weight is transmitted with the ID following the pressing of the ENTER key, the display shows for about 2 seconds the message " tr.id ", and the transmitted string is the following:
<ESC>[II]PIDSS,B,LLLLLLLLLLUU,YYTTTTTTTTTTUU,(ID | NO)<STX>.
See the following section "Serial commands" for the string description.

NOTES:
- With approved instrument, the storage of the weigh and the following transmission of the ID to PC by pressing a key are possible only if the printout is active (or passage from 0 or weight instability and minimum weight of 20 divisions).
- With approved or not approved instrument, the storage of the weigh through the PID serial command is always possible for all the weighs from 0 to full range value.

READING OF THE WEIGHS CARRIED OUT
In order to read the information relative to the weighs carried out:
- Press the **MODE** key.
- The message "rew.id" appears; now one should enter the rewriting number (from 00000 to 00255) and press ENTER
- The message " id " appears; now one should enter the weigh number (from 000000 to 131072) and press ENTER
- Now it is possible to view on the display the weigh information in sequence, and scroll through it with the ->0<- key (ahead) or the ->T<- key (backwards):
  - "ch. x", in which x is the scale number (always 1).
  - " um yy" in which yy is the unit of measure (kg, g, t o lb).
  - gross weight (for about a second the message "GroSS" appears and then the gross weight value).
  - Tare weight (for about a second the message "tArE" appears or "tArEpt" if it is a manual tare; then the tare value appears).
- Press C to return to weighing.

NOTES:
- The alibi memory can store up to 131072 weighs; then the rewriting takes place from the beginning.
- If the alibi memory is empty, when the MODE key is pressed the message "EMPTY" appears for about a second, an error acoustic signal is enabled and one returns to weighing.

- If the entered ID is not valid, in other words, if there is no stored weigh relative to the entered ID, the message " no id" appears and an error acoustic signal is enabled and one returns to weighing.

INITIALISATION OF THE ALIBI MEMORY

It is possible to cancel all the weighs made, initialising the alibi memory; this operation can be made directly on the indicator (see the parameter “SETUP” >> “ini.AL” of the set-up environment, or through the serial command (see “SERIAL COMMANDS” below).

NOTES:

- It is not possible to just cancel a single weigh.

The initialisation is possible only with a non approved instrument.

SERIAL COMMANDS

WEIGH STORAGE

Command

[II]PID<CRLF> or **<ESC>[II]PID<STX>**

in which: [II]: 485 address
<ESC>: 27 ascii decimal character
<STX>: 2 ascii decimal character

Instrument response to the **[II]PID<CRLF>** command:

[II]PIDSS,B,LLLLLLLLLUU,YYTTTTTTTTTUU,(ID | NO) <CRLF>

Instrument response to the **<ESC>[II]PID<STX>** command:

<ESC>[II]PIDSS,B,LLLLLLLLLUU,YYTTTTTTTTTUU,(ID | NO)<STX>

In which:[II]		485 address (only when transmitting in 485 mode)	
SS		OL" (weight in overload) or "UL" (weight in underload) or "ST" (stable weight) or "US" (unstable weight) or "TL" (TILT input closed).	
B		scale number (always 1)	
LLLLLLLLL:		gross weight on 10 digits	
UU:		unit of measure	
YY:		2 spaces in the case of null tare or semiautomatic tare, “PT” in case of manual tare	
TTTTTTTTT:		tare on 10 digits	
ID	XXXX-YYYYYY		in which: XXXXX is the rewriting number (5 digits, from 00000 to 00255) and YYYYYY is the weigh number (6 digits, from 000000 t0 131072).

In the case in which the gross weight is negative or unstable, the weight is transmitted but not the ID; “NO” is in its place. In these cases there is no storage in the alibi memory.

WEIGH READING

Command:

[II]ALRDXXXXX-YYYYYY <CR o CRLF>

In which:	[II]	485 address (only when transmitting in 485 mode)
	XXXXX	rewriting number (from 00000 to 00255)
	YYYYYY	weigh number (from 000000 to 131072)

Instrument response:

[II]B,LLLLLLLLLUU,YYTTTTTTTTTUU<CR o CRLF>

In which:	[II]	485 address (only when transmitting in 485 mode)
	B	scale number (always 1)
	LLLLLLLLL	gross weight on 10 digits

UU	unit of measure
YY	spaces in the case of null or semiautomatic tare, PT in the case of manual tare
TTTTTTTTTT	tare weight on 10 digits

ALIBI MEMORY RESET (only with non approved instrument)

Command:
[II]ALDL <CR o CRLF>
In which [II] 485 address (only when transmitting in the 485 mode)

Instrument response:
[II]ALDLOK <CR o CRLF> if the cancellation has been effective
[II]ALDLNO <CR o CRLF> if the cancellation has not worked

The commands are ignored if the unit is not in the alibi memory functioning mode.

10.8 TOLERANCE CHECK (ChECk)

In this functioning mode, the instrument commands the functioning of the SP1, SP2, SP3 and SP4 icons of the LCD display and the functioning of the 4 relays of the 2 expansion boards (optional for IPC50 only), on the basis of a freely programmed TARGET WEIGHT, a LOWER TOLERANCE value, an UPPER TOLERANCE value, and an ENABLING threshold.

----------(thrESh)----------(t.Min)----------TARGET WEIGHT----------(t.MAX)----------

It is possible to carry out a check on the gross weight or the net weight: in the TECHNICAL set-up, after the selection of the Check mode, one is asked to select “GroSS” (gross weight) or “nEt” (net weight). The selection of the check type (net or gross), causes the configuration of the relay’s relative default parameters.
By setting the threshold for activating the functioning mode, if the weight is under the set threshold, no check on the weight is made; if instead the weight reaches or surpasses the threshold, the check on the tolerances is enabled.
ENTERING THE ACTIVATION THRESHOLD, TARGET AND THE TOLERANCES
- Press the MODE key; the instrument first shows “tArGEt“ then “000000” or the target previously used. With the keyboard enter the desired target; with C one quickly zeros the entered value; by pressing C again one cancels the entry and returns to weighing.
- Confirm with ENTER/PRINT: the display shows first “t.Min” then “000000” or the T1 lower tolerance previously used.
With the keyboard enter the desired lower tolerance; with C one quickly zeros the entered value; by pressing C again one cancels the entry and returns to weighing.
- Confirm with ENTER/PRINT: the display shows first “t.MAX” then “000000” or the T1 upper tolerance previously used.
With the keyboard enter the desired upper tolerance; with C one quickly zeros the entered value; by pressing C again one cancels the entry and returns to weighing.
- Confirm with ENTER/PRINT: the display shows first “thrESh” and then “000000” or the enabling threshold used previously. Through the keyboard enter the desired enabling threshold; by pressing C one quickly clears the entered value, while by pressing again C one cancels the entry and returns to the weighing mode.
- Confirm with ENTER/PRINT: the display shows “StorE” for an instant; after this it returns to weighing.
NOTES:
- If the entered value is wrong (i.e. tolerance value greater than the target or target greater than the scale capacity) the indicator emits a prolonged sound and zeros the entered value; furthermore, if a value different than the scale division isentered, it is rounded off to the nearest minimum division multiple.

PROCEDURE

After having entered the activation threshold, the target and the tolerance values, put the weight on the scale: if the target is greater than 0, the display shows, at regular intervals, if the weight is within the entered tolerances:

Scale	Display View		Enable Relay
Weight ≤ thrESh			
Weight < Target – t.Min	_undEr	SP1	reL.b.1
Target – t.Min ≤ Weight	_oK –X	SP2	reL.b.2
Weight = Target	-oK-	SP2	reL.b.2
Weight ≤ Target + t.MAX	¯oK X	SP2	reL.b.2
Weight > Target + t.MAX	¯oVEr	SP3	reL.b.3
Weight ≥ thrESh		SP4	reL.b.4

NOTE: X is the difference (1 digit) between the weight on the scale and the target.

ACOUSTIC SIGNAL (IPC50 only)

It is possible to enable an acoustic signal (beep) for the control of tolerance in two different mode:
- b.SeNS: that is emitted when the weight is greater than the enabling threshold; the frequency with which the acoustic signal is emitted increases when the weight approaches the target and vice versa. When the weight reaches the target, the indicator emits a different acoustic signal.
- b.out: that is emitted when the weight is less than Target-t.Min or greater than Target+t.MAX.

To enable this function, press the keys “F” and “6” in sequence (in the 17-key indicators) or the key “MODE” (in the 5-key indicator): the display shows “b.SeNS”/”b.out” and then “StorE”; to disable the function press again the keys “F” and “6” or ”MODE” in sequence: the display shows “MutE” and then “StorE”.

TECHNICAL NOTES

- The 0 value is valid for the tolerances and for the activation threshold as well.
- By setting the target at 0 the weight check is disabled.
- If the printer has been configured and a target greater than 0 has been set, the target, tolerances, and check result will be printed.
- The check of the weight is active also during the modification of the target and the tolerances, according to the last confirmed values. The new entered values start working after having been confirmed.
- The 4 relays of the 2 expansion boards (optional for IPC50 only) are automatically enabled depending on the mode selection, and may be used to manage external signals which show the operator whether the weight on the scale is INSUFFICIENT, CORRECT, ABUNDANT in comparison to the TARGET WEIGHT. Furthermore it is not possible to set the functioning mode of the relays, but just the status (NO / NC) and the type of check (direct or upon stability).
- It is possible to set the target, the tolerances and the activation threshold through the serial line, see section “FORMAT OF THE SERIAL COMMANDS”.

10.9 DISPLAY WITH SENSITIVITY X 10 (VISS) (TO BE USED IN TESTING DURING THE CALIBRATION)

By pressing the MODE key one switches from the weight display with normal sensitivity to a sensitivity ten times greater; in fact, one will note that the last digit on the right of the display will have 1 digit more, equal to the scale’s division divided by 10.

If a printout is carried out, the weight values are printed with the normal sensitivity.

TAKE NOTE: In case the instrument is LEGAL FOR TRADE, when “MODE” is pressed, the sensitivity times 10 is displayed for five seconds after which the instrument returns to standard weight displaying.

10.10 HOLD: FREEZING THE WEIGHT ON THE DISPLAY (HLd)

By pressing MODE, the value of the weight is held on the display, and the display shows HoLd alternately with the weight held value (every 5 sec). To release the weight value on the display, press MODE key again.

10.11 PEAK WEIGHT PEAKS DETECTION (PEaK)

It is possible to use the instrument to store the maximum weight value measured during the weigh (PEAK), useful to measure, for example, the breaking load of the materials.
By pressing MODE the peak mode is enabled, and the display shows “PEAK” alternating with the held weight value (every 5 sec).
To stop the test and return to standard operation press MODE key again, (for an instant “PEAkoF” is displayed).
The detected weight value will be:

- The maximum before a rapid decrease of the weight (measurement of the ultimate load).
- The maximum and persistent weight detected on the scale.

SETTING SAMPLING TIME

It is possible to set the minimum time period of the peak impulse beyond which the measuring is accepted. This time is set by keeping “ENTER/PRINT” pressed for a few seconds when the indicator is not in the peak mode: the message **-tP-** appears on the display followed by a number which corresponds to the minimum time length of the impulse expressed in hundredths of seconds.
By pressing “->0<- or ->T<-” the following settable values are proposed: 5, 10, 20, 30, 40, 50, 60, 75, 100, and 200; press “ENTER/PRINT” to confirm the desired value, (the indicator will return to weighing).
The default value is 2.

10.12 HORIZONTAL TOTALIZER (Sum of lots -> tot 0)

If the unit is switched OFF, the totalizer will be resetted

Tot.Mod : TYPE OF TOTALISATION (NORMAL, FAST, AUTOMATIC)
Once the totalizer operating mode is selected, both horizontal and vertical, one is asked to set the type of totalization: normal (t.norM), fast (t.FASt) or automatic (Auto); with ->0<- or ->T<- one changes the parameter; with ENTER one confirms.

- **t.norM** : In the normal totalisation, for each accumulation operation there is the display of the weigh number and the net weight total, before the printing of the data.
- **t.FASt** : In the fast one, just the display of the "-tot-" message appears on the display, before the printing of the data.
- **Auto** : In the automatic one, there is the automatic acquisition of the stable weight; therefore the display of the "-tot-" message on the display and then the printing of the data.

MAx.tot: NUMBER OF CONSECUTIVE TOTALISATIONS AFTER WHICH THE TOTAL IS AUTOMATICALLY PRINTED AND RESET
After having carried out the set weighs, the accumulated general total is printed and reset; set a value between 00 and 63.
NOTE: the value 00 disables the function

TOTALISATION OPERATIONS

In order to carry out the totalisation it is necessary to press the MODE key (if the automatic totalisation has not been set): the weight is accumulated in two total levels (a partial total and a general total).
To totalize, the net weight must be at least one division with non approved instrument and of at least 20 divisions with approved instrument.
To avoid undesired accumulations, the "MODE" key is active just once; it reactivates depending on the setting of the “ rEACT ” parameter in the SET-UP environment, in other words, either after passing by the net zero of the scale, by instability or always (see section 9.11 “REENABLING OF THE PRINTOUTS AND THE INDICATOR FUNCTIONS”).
If the presence of a printer has been configured, the "MODE" key or automaticly causes also the printing of the weight values.

After a totalisation, press the MODE key again:
- with the normal totalizer, one can temporarily view on the display the number of weighs carried out and the PARTIAL NET TOTAL accumulated until that moment (Subtotal): if the accumulated digit is more than 6 digits the visualisation takes place in two stages.
- with the fast totalizer the " no.0.UnS " error message is displayed.

NOTE:
- If the gross or net weight is equal to zero, with the normal totalizer the indicator displays the accumulated total, while with the fast totalisation the “GroS.Er or nEt.Err” error message is displayed.

TOTALISATION WITH PRINTING

If the presence of a printer has been configured, upon each pressing of MODE, one prints the data programmed in step SEtuP >> SEriAL >> CoM.Prn >> Pr.ConF of the set-up environment **(TECH.MAN.REF.)**, for example:
- Weigh number
- GROSS weight
- TARE weight
- NET weight

PRINTING AND ZEROING OF THE TOTALS

The instrument has two different total levels, a partial total and a general total, which increase upon each totalisation; these may be printed and zeroed independently from each other.

To print and zero the PARTIAL TOTAL one should press for a short time the ENTER key; depending on the type of totalisation, various messages will be displayed:
- With **normal totalisation** the number of weighs and the accumulated total will be displayed.
- With **fast or automatic totalisation** the message “totAL” will be displayed.

The number of weighs made and the NET WEIGHT TOTAL is printed.
To print and zero the GENERAL TOTAL one should press for a few seconds the ENTER key; depending on the type of totalisation; various messages will be displayed:
- With **normal totalisation** the number of weighs and the accumulated total will be displayed.
- With **fast or automatic totalisation** the message “G.totAL” will be displayed.

The number of weighs made and the NET WEIGHT TOTAL is printed.

During the weighing, it is possible to view at any time the number of weighs and the accumulated net weight in the totals:
- By pressing for an instant the **6** key, the following will be displayed in this sequence:
  "n x", in which x is the number of weighs made
  "totAL", followed by the accumulated **PARTIAL NET TOTAL**.

- By pressing in sequence the **Fn** and **6** keys, the following will be displayed in sequence:
  "n x", in which x is the number of weighs made
  "totAL", followed by the accumulated **GENERAL NET TOTAL**.

MEMORY STORAGES

It is possible to memorize the weigh totalisation in one of nine memory storages (identified from 1 to 9).
- Press in sequence the **Fn** and **5** keys; the display shows *" rn n ":*
- Enter the desired storage number (from 1 to 9).
- Now all the made totalisations are stored in the storage number just entered.
- To change the storage, repeat the same operations.

To recall or zero the PARTIAL TOTAL of a storage, it is necessary to recall first its identifying number, as previously described; however the GRAND TOTAL is not available for each storage.

NOTE:
- The selected storage remains active for all the following totalizations until it is substituted with another.
- All the values accumulated in the single storage numbers are automatically zeroed each time the instrument is turned off.
- When turned on, the indicator automatically goes to storage nr. 0 (not selectable).

Storage nr. 0 is considered to be the basic one in which non-addressed weights are accumulated.

10. 13 VERTICAL TOTALIZER (Sum by recipe -> tot S)

Like the horizontal totaliser but with each pressing of MODE (or automatcly depend of parameter rEACT) the indicated weight is totalised and automatically tared; in this way it is possible for example to fill a container with various products and to know the total weight of the container (on the display or/and on a printer) and the total weight of all the containers weighted (on the display or/and on a printer).

10.14 PIECE COUNTING (COUn)

In this functioning mode it is possible to carry out the reference operations in order to use the scale for counting pieces.
When the functioning mode is selected, one is asked to set some parameters:

- **"uM.APW" : unit of measure of the average unit weight (APW)**.
  - Press ENTER to enter the step.
  - With the ->0<- or ->T<- keys select the unit of measure (*g / kg / t / Lb*).
  - Confirm with ENTER
  - Press many times the C key until the display shows the message “SAVE?”.
  - Press ENTER to confirm the changes made or another key to not save.
- **"WAit.t" : sampling interval.**
  Setting of the sampling time (in seconds, with a decimal); greater is the time set and more precise will the calculated APW be.
  - Press ENTER to enter the step.
  - Set the desired time.
  - Confirm with ENTER
  - Press many times the C key until the display shows the message “SAVE?”.

Press ENTER to confirm the changes made or another key to not save.

COUNTING PROCEDURE

The operations to be carried out are the following:
1) Place the empty container on the scale and press ->T<- to tare it.
2) Check that the zero is on the display and press the MODE button: the counting function activates
3) The display suggests a REFERENCE QUANTITY. The possible options are: 5, 10, 20, 30, 40, 50, 60, 75, 100, 200.
4) Press “->0<- or ->T<-” the number of times needed to reach the desired sample size.
5) Put the quantity of pieces chosen for the SAMPLE on the scale and press ENTER to confirm or C to cancel the operation and return to weighing.
6) Press ENTER the display will indicate SAMPL and the indicator will calculate the **A**verage **P**iece **W**eight (**APW**). After a few instants the display will indicate the quantity selected put on the platform.
7) Add the rest of the items to count in the container and whose value will appear on the display.
8) Unload the scale, the APW will remain stored in memory for the next counting of similar pieces, without having to repeat the REFERENCE operation.
9) By pressing the MODE key one switches from the display of the number of pieces to the display of the net weight and vice versa.
10) **To carry out a new reference operation**, press at length the MODE key and repeat the operations as describe in point **3).**

NOTE: If the number of calculated pieces is greater than 999999, the display shows just the first 6 digits on the right.

PIECE COUNTING IN EXTRACTION

1) Load a FULL container on the scale and press "->T<-" to tare it.
2) Press "MODE": The display suggests various REFERENCE QUANTITIES: 5,10,20,30,40,50,60,75,100,200
3) Press "->0<- or ->T<- " various times until the chosen quantity is displayed.
4) From the container take off the same number of pieces and press "ENTER/PRINT" to confirm. The display shows "SAMPL" while the indicator calculates the Average Piece Weight. The display shows in negative the quantity extracted.
6) Continue the counting in extraction.

"Er.Mot" ERROR DUE TO WEIGHT INSTABILITY DURING THE SAMPLING

It may happen that during the sampling phase the weight is unstable and therefore it is not possible to correctly calculate the APW. The "Er.Mot" is shown remaining for about three seconds. One should therefore repeat the sampling operation.

MINIMUM WEIGHT OF THE SAMPLE

It is advisable to use a reference quantity equal or greater than 0,1% of the scale capacity.
In any case, the weight of the reference quantity should not create an APW lower than the two internal points of the converter (intrinsic limit of the instrument); if this condition takes place, during the sampling, the display will indicate for an instant: "Error " and the quantity put on the plate will not be accepted. One should therefore use a higher reference quantity.

VARIABLE SAMPLE SIZE (REFERENCE QUANTITY)

It is possible to insert directly by keyboard any reference quantity up to 999999 (not only the quantities proposed by the MODE key).

- With the scale at zero, after having stored a tare, press "**Fn**"+ "**5**"; the display will indicate *"n S"* and then *"0"* or a quantity already stored.
- Modify and/or enter the quantity (up to 999999) using the numeric keys.
- Follow the operations describe in point **5)** in the **COUNTING PROCEDURE** section.

DISPLAY AND MODIFICATION OF THE AVERAGE PIECE WEIGHT (IPC50 only)

It is possible to view or enter a known Average Piece weight using the keyboard. This can significantly speed up the reference operations.

- With the scale at zero, after having stored a tare, press "**Fn**" + "**6**", or the ENTER key at length.
- The display will indicate *" APW "* and then "000.000" or a previously entered value expressed with three decimal digits in the programmed unit of measure.
- Enter the APW value with the keyboard (or leave the one present) and press ENTER to confirm.
  Example:
  Unit of measure of the APW in g
  000.000 means 000,000 g (for example APW = 001,050 = 1,05 g).

Press ENTER to confirm and load the pieces to count as described in section PCS COUNTING point 5.

PRINTING UNDER COUNTING MODE

If the presence of a printer has been configured, each time ENTER is pressed, while either weight or pieces are displayed, one prints the data programmed in the SEtuP >> SEriAL >> CoM.Prn >> Pr.ConF of the set-up environment; for example:
- GROSS weight
- TARE weight
- NET weight
- Quantity of PIECES (PCS) on the scale in that moment.
- calculated APW, expressed in the set unit of measure, with three decimal digits

11 INDICATOR CONNECTED TO PRINTER, FUNCTIONING BY BATTERY

In a system made up of an indicator connected to a printer in which both are battery powered, the printer, normally in STAND-BY, will be powered only when one prints. When the printing is finished the printer returns to STAND-BY automatically. This functioning is useful to reduce the energy absorbed by the battery when the printer is not used.

In this configuration if one has the need to maintain the printer powered in order to replace the paper and for other operations:

- Press the ZERO key for a few seconds.
- On the display the blinking “onPri” message will appear.
- The printer is now on; carry out the desired operations.
- Press any key to exit.

NOTE: it is not possible to turn on the printer with the ->0<- key in the REPEATER IN RADIO FREQUENCY functioning mode.

12 INSTRUMENT MESSAGES WHILE IN USE

MESSAGE	DESCRIPTION
AL.Err	It is displayed when one selects the alibi memory functioning mode, and upon start-up, the alibi memory is not connected or there are communication problems between the indicator and the board. The "kg/lb conversion" functioning is automatically set, but not saved in the set-up environment.
oVEr	Message displayed if the display is higher than 9 divisions of the maximum value set in the setup (rAnGE 1)
undEr	Message displayed if the display is lower than 100 divisions of the zero value set in the setup (tp0 or 0.CALib) if the IPC is in trade mode
ERRIO	It is displayed at start-up, when the I/O interface (OPTIONAL) does not work or is not present, and a key has been linked to an input, or the SET POINT (on the gross weight or on the net weight) functioning mode has been selected. In this case one passes automatically to the display with sensitivity times 10 functioning mode, but it is not saved in the set-up environment.
Er.i.b.X	A function has been linked to input X (from 1 to 4) and this is not present; see the "InPutS" parameter of the set-up environment
Er.r.b.X	In a set point functioning mode the relay X has been set (from 1 to 4) and this is not present; see the "outPut" parameter of the set-up environment
BuSy	Print under way (PRN serial port is occupied) or indicator waiting to transmit a printing to a PC.
UnStAB	One is trying to print with an unstable weight.
un.oVEr	One is trying to print with the weight in underload or in overload, in other words, with a weight of 9 divisions greater than the capacity or of 20 divisions below the gross zero.
GroS.Er	One is trying to print with a not positive gross weight (equal or less than zero).
Net.Err	One is trying to print with a not positive net weight (equal or less than zero).
LoW	Net weight less than the minimum weight provided for the printing or the totalisation.
no.0.unS	Weight not passed by net 0 or by instability.
ConV.	In standard mode, with approved instrument, one is trying to print while the instrument is converting the unit of measure.
no in	In the input/output mode (set as "in.out"), one is trying to acquire a second time the input weight.
no out	In the input/output mode (set as "in.out"), one is trying to acquire a second time the output weight.
no 1	In the input/output mode (set as "G.t." or "1st.2nd**"**), one is trying to acquire a second time the input weight.
no 2	In the input/output mode (set as "G.t." or "1st.2nd**"**), one is trying to acquire a second time the output weight.
Er.Mot	In the counting mode, the sampling has not been made because the weight is unstable.
Error	In the counting mode, the sampling has not been made because one should use a higher reference quantity.

13 PRINTING EXAMPLES

```
REGISTER # 5
WEIGHING NR.      00000001
GROSS              0,572 kg
TARE               0,500 kg
NET                1,500 kg



REGISTER # 5
WEIGHING NR.      00000002
GROSS              3,000.kg
PT                 1,000 kg
NET                2,000 kg



REGISTER # 5
WEIGHING NR.      00000002
ID1                  234
ID2                 6789
TOTAL NET          2,154 kg
TICKET NR.              2
12:03  08-01-02
```

Totalizer Mode With Register

```
GROSS              1,228 kg
TARE               0,456 kg
NET                0,772 kg
PCS                  150
APW             0,00514 kg
ID1                  234
ID2                 6789
TICKET NR.             13
12:11  08-01-02
```

Piece Counting Mode

```
HEADING 1
HEADING 2
HEADING 3
HEADING 4
GROSS              8,000 kg
PT                 3,000 kg
NET                5,000 kg
TICKET NR.             11
12:41  08-01-02
```

Indicator in Standard Mode
(UISS, Std, ntgS)

```
GROSS (HOLD)       4,664 kg
TARE  (HOLD)       3,044 kg
NET   (HOLD)       1,620 kg
ID1                  2345
TICKET NR.             10
12:06  08-01-02
```

Hold Mode

```
GROSS (PEAK)       0,726 kg
TARE  (PEAK)       0,000 kg
NET   (PEAK)       1,606 kg
12:09  08-01-02
```

Peak Mode

14 INSTALLATION

To obtain the best results it is recommended to install the indicator and the platform (or transducer) in a place with the following conditions:

A flat, level surface on which to rest

Stable and vibration free

Moderate temperature and humidity (15-30°C and 40-70%).

No dust or strong vapours

No draughts

Mains power supply is restricted to within ± 10% of the rated voltage

Make sure the platform is level or that the loading cells are resting evenly

Avoid welding with load cells installed.

When the load cells are used with assembling kits under storage bins or the like, connect the upper and lower supporting plate with a copper wire cable and then earth all the upper plates.

Use waterproof sheaths and couplings in order to protect the load cell cables.

Use a waterproof junction box to connect the cells.

The extension leads of the load cells or signal amplifiers must be screened. In addition they must be laid on their own in a raceway or metal pipe as far away as possible from the power supply cables.

Connection of the cell or amplifier cables on the electrical panel shall be independent and, if possible, connected directly to the indicator's terminal board without laying other cables in the raceway.

Install "RC" filters on the contactor coils, on the solenoid valves and on all devices producing electric disturbances.

If it is possible that condensation could form inside the weight transmitter it is advisable to leave the instrument powered at all times.

Electric protections (fuses etc.) are provided by the technician installing the instrument.

Do not install anywhere where there is the risk of explosion.

All cables must be wound at least once around the ferrite ring before being connected to the terminal board; the cable screen must be left outside of the ferrite and should be connected to the relevant ground pin.

Technical Personnel Only

15 SETUP ENVIRONMENT

With "SETUP ENVIRONMENT" we intend a specific menu, inside which it's possible to set all the functioning parameters of the IPC.

To enter it, turn on the IPC (C key) and press the ->0<- key when the version software is shown (XX.YY) the display shows:

02.01 the instrument type and the metrological software version, then **XX.YY.ZZ** is the installed software version, then **DFW06** is the name of the installed software, then **CloCK** if there is the optional board with date and time, then **bt X** in which X is a number in percentageindicates the battery level or If the instrument is powered by the mains, the message **"PoWEr"** is displayed, then **-K- X.YY** in which K identifies the type of keyboard: K=0, 5-key keyboard, K=1, 17-key keyboard and X.YY is the installed software version, then the auto test (99999; 88888….), press the key ->T<- during this test.

The indicator shows the first parameter "TyPE".

NOTE: THE METROLOGICAL PARAMETERS of the SETUP ARE normally NOT ENABLED and therefore are just displayed. To enable them, open the instrument and activate the special microswitch (see "CONNECTIONS SCHEMES" section) and then turn it on.

If the instrument is LEGAL FOR TRADE one must first remove the legal seal on the front panel.

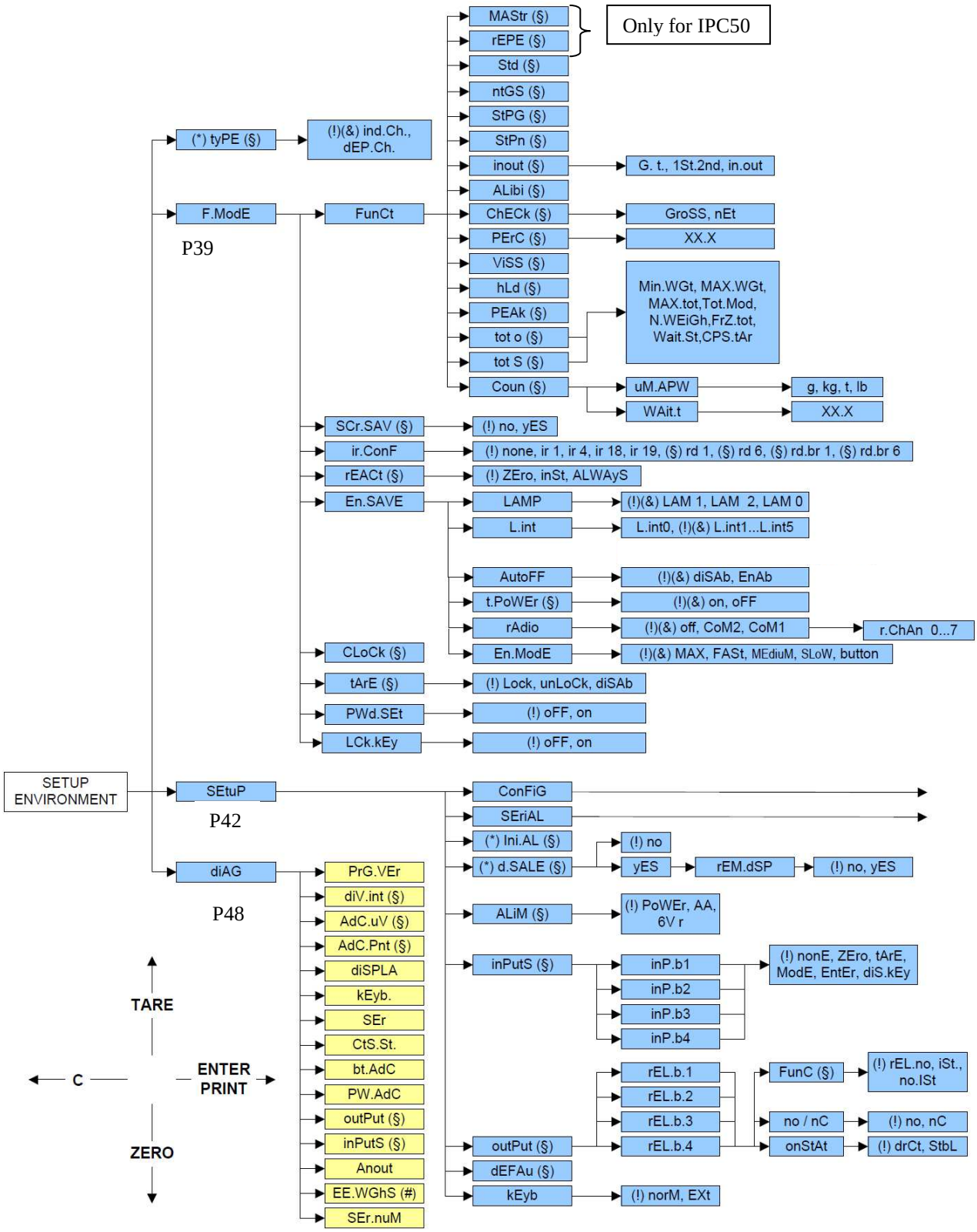
In the Set-Up condition, the instrument keys allow the user to perform the following functions:

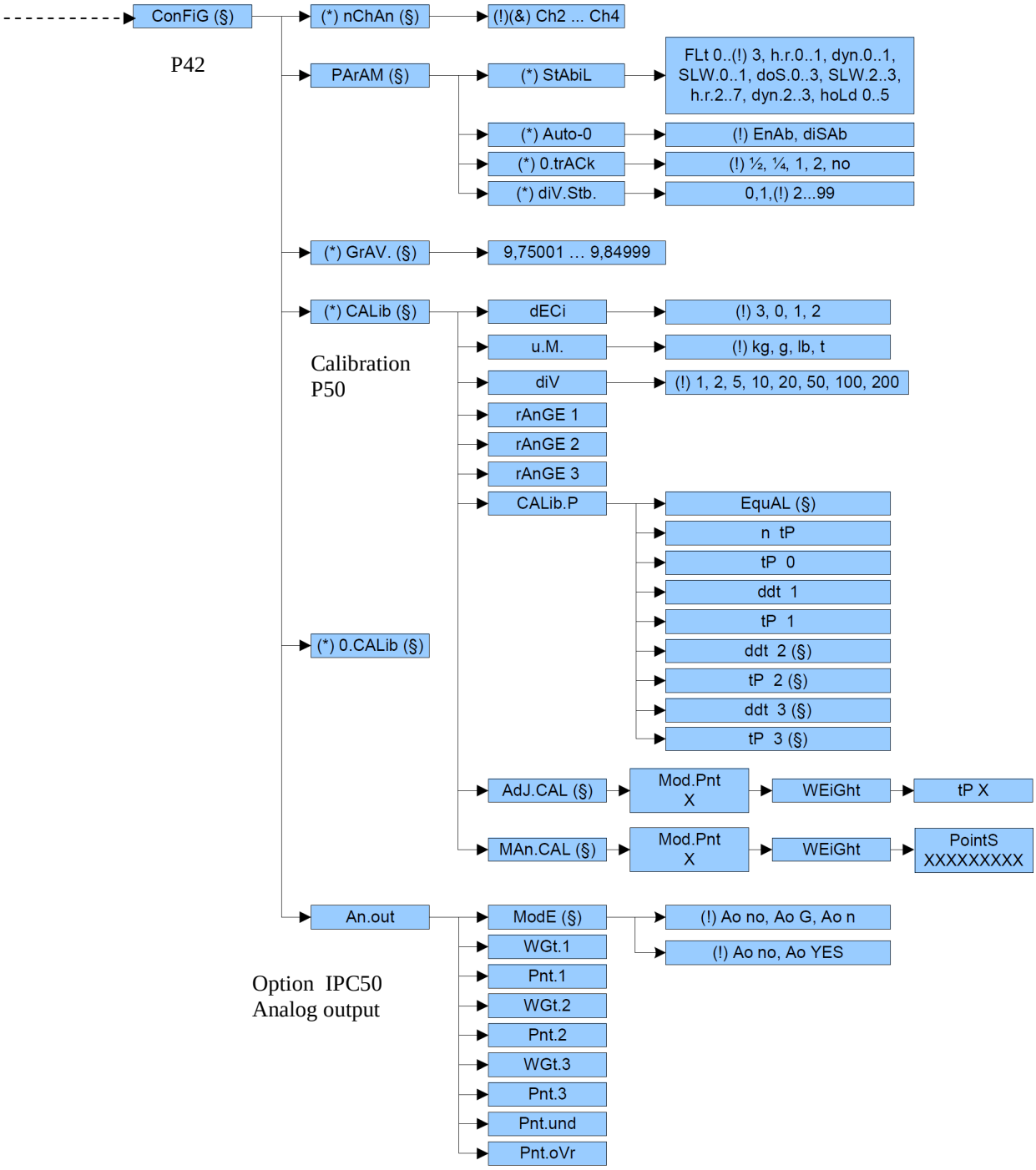
->0<-	Scrolls the programming steps forward in sequence.
->T<-	Allows to scroll backwards through the programming steps.
MODE	Allows to quickly position on the first step of a menu.
ENTER/PRINT	Allows to enter a step or confirm a parameter inside a step.
C	Allows to exit a step without confirming the possibly modified parameter and go to the preceding level. When entering a numeric value it quickly zeros the displayed value.
NUMERIC KEYS	one can enter numeric values, from right to left.

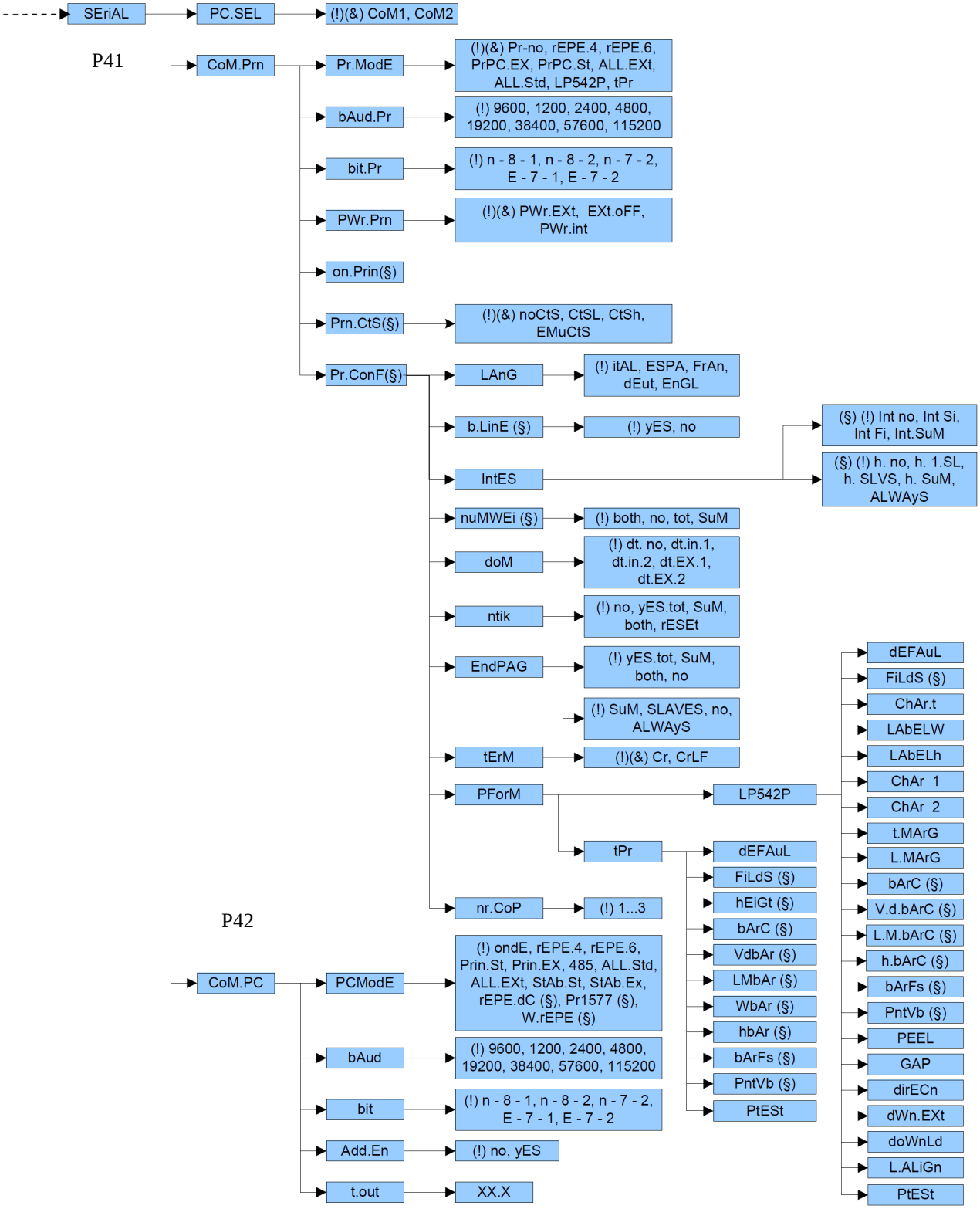
The display indicates the abbreviation of the step whose meaning is described below. The values indicated with the **(!)** symbol at the end of the step, are values set by DEFAULT.

TO EXIT THE SET-UP ENVIRONMENT, PRESS THE C KEY MANY TIMES UNTIL THE INDICATOR SHOWS "SAVE?" IN THE DISPLAY: CONFIRM WITH ENTER TO SAVE ANY CHANGES MADE OR PRESS ANOTHER KEY TO NOT SAVE.

15.1 SET-UP ENVIRONMENT BLOCK DIAGRAM




ConFiG (§)
P42
(*) nChAn (§)
(!)(&) Ch2 ... Ch4
PArAM (§)
(*) StAbiL
FLt 0..(!) 3, h.r.0..1, dyn.0..1, SLW.0..1, doS.0..3, SLW.2..3, h.r.2..7, dyn.2..3, hoLd 0..5
(*) Auto-0
(!) EnAb, diSAb
(*) 0.trACk
(!) ½, ¼, 1, 2, no
(*) diV.Stb.
0,1,(!) 2...99
(*) GrAV. (§)
9,75001 ... 9,84999
(*) CALib (§)
Calibration
P50
dECi
(!) 3, 0, 1, 2
u.M.
(!) kg, g, lb, t
diV
(!) 1, 2, 5, 10, 20, 50, 100, 200
rAnGE 1
rAnGE 2
rAnGE 3
CALib.P
EquAL (§)
n tP
tP 0
ddt 1
tP 1
ddt 2 (§)
tP 2 (§)
ddt 3 (§)
tP 3 (§)
(*) 0.CALib (§)
AdJ.CAL (§)
Mod.Pnt X
WEiGht
tP X
MAn.CAL (§)
Mod.Pnt X
WEiGht
PointS XXXXXXXXX
An.out
Option IPC50
Analog output
ModE (§)
(!) Ao no, Ao G, Ao n
(!) Ao no, Ao YES
WGt.1
Pnt.1
WGt.2
Pnt.2
WGt.3
Pnt.3
Pnt.und
Pnt.oVr


SEriAL
PC.SEL
(!)(&) CoM1, CoM2
P41
CoM.Prn
Pr.ModE
(!)(&) Pr-no, rEPE.4, rEPE.6, PrPC.EX, PrPC.St, ALL.EXt, ALL.Std, LP542P, tPr
bAud.Pr
(!) 9600, 1200, 2400, 4800, 19200, 38400, 57600, 115200
bit.Pr
(!) n - 8 - 1, n - 8 - 2, n - 7 - 2, E - 7 - 1, E - 7 - 2
PWr.Prn
(!)(&) PWr.EXt, EXt.oFF, PWr.int
on.Prin(§)
Prn.CtS(§)
(!)(&) noCtS, CtSL, CtSh, EMuCtS
Pr.ConF(§)
LAnG
(!) itAL, ESPA, FrAn, dEut, EnGL
b.LinE (§)
(!) yES, no
(§) (!) Int no, Int Si, Int Fi, Int.SuM
IntES
(§) (!) h. no, h. 1.SL, h. SLVS, h. SuM, ALWAyS
nuMWEi (§)
(!) both, no, tot, SuM
doM
(!) dt. no, dt.in.1, dt.in.2, dt.EX.1, dt.EX.2
ntik
(!) no, yES.tot, SuM, both, rESEt
EndPAG
(!) yES.tot, SuM, both, no
(!) SuM, SLAVES, no, ALWAyS
tErM
(!)(&) Cr, CrLF
PForM
LP542P
dEFAuL
FiLdS (§)
ChAr.t
LAbELW
LAbELh
ChAr 1
ChAr 2
t.MArG
L.MArG
bArC (§)
V.d.bArC (§)
L.M.bArC (§)
h.bArC (§)
bArFs (§)
PntVb (§)
PEEL
GAP
dirECn
dWn.EXt
doWnLd
L.ALiGn
PtESt
tPr
dEFAuL
FiLdS (§)
hEiGt (§)
bArC (§)
VdbAr (§)
LMbAr (§)
WbAr (§)
hbAr (§)
bArFs (§)
PntVb (§)
PtESt
nr.CoP
(!) 1...3
P42
CoM.PC
PCModE
(!) ondE, rEPE.4, rEPE.6, Prin.St, Prin.EX, 485, ALL.Std, ALL.EXt, StAb.St, StAb.Ex, rEPE.dC (§), Pr1577 (§), W.rEPE (§)
bAud
(!) 9600, 1200, 2400, 4800, 19200, 38400, 57600, 115200
bit
(!) n - 8 - 1, n - 8 - 2, n - 7 - 2, E - 7 - 1, E - 7 - 2
Add.En
(!) no, yES
t.out
XX.X

15.2 DESCRIPTION OF THE STEPS

TypE

Ind.ch : always used it
DEp.ch : not available

F.ModE (SCALE FUNCTIONING)

FunCt FUNCTIONING MODE

Std	kg / lb conversion.
ntGS	Net weight / gross weight conversion.
StPG	Setpoint on the GROSS weight.
StPn	Setpoint on the NET weight.
inout	Input / output weigh.
ALibi	Alibi memory.
ChECK	non available
PerC	non available
UiSS	Sensitivity times ten.
hLd	Hold.
PEAK	Peak detector.
tot o	Horizontal totalizer.
tot S	Vertical totalizer.
Coun	Counting.

NOTE: If one has selected the “inout”, “tot o”, “tot S” or “Coun” mode one will be asked to also select a functioning parameter: see the functioning mode section for the relative description.

Once the functioning mode has been selected, one is asked to enable the standard printouts of that mode; the display shows the message "dEF.Pr?": press ENTER to enable the printouts, or C to enable just the functioning mode and not the relative printouts.
(!) Std

Scr.SAv: SCREEN SAVER

If the indicator has the date/time option, it is possible to enable the “Screen Saver” function: after a programmable time (from 1 to 255 minutes) that the scale is unloaded, the time is shown on the display, in the “HH-MM.SS” format. As soon as a weight variation is detected, or a key is pressed, the indicator displays the current weight once again.

no	Disabled.
yES	Enabled: one is asked to enter the time which the indicator waits to activate the screen saver, after the weight has become stable and keys are not pressed.

(!) no

irConF REMOTE CONTROL CONFIGURATION

If the instrument has an infrared ray interface, with the 4-key remote control (optional) it is possible to remote the ZERO, TARE, MODE and ENTER keys, or just the TARE key.

ir no	Remote control disabled.
ir 1	All the remote control keys work as the TARE key.
ir 4	The remote control keys work as ZERO, TARE, MODE and ENTER

lr18, rd1, rd6, rd.br1, rd.br6 not available
(!) ir no

rEACt REENABLING OF THE PRINTOUTS AND THE INDICATOR FUNCTIONS

While using the indicator, it is possible to incur in the "**no.0.unS"** error shown on the display accompanied by an acoustic signal; this means that the printout or the function which one wants to carry out must be renabled (in order to avoid accidental executions).
It is possible to set the reenabling in the following modes: "passage of the net weight by zero", "weigh instability" or "always".

ZEro passage of the net weight by zero
inSt instability
ALWAyS always

(!) ZEro

En.SAVE ENERGY SAVING

LAMP DISPLAY BACKLIGHTING

Through this StEP one programmes the backlight functioning:

LAM 0 backlighting disabled
LAM 1 The backlight turns on if the weight changes and it turns off automatically after stability (no change) has been maintained for at least 10 seconds.
LAM 2 The background light is always on.
(!) LAM 0

L.int DISPLAY BACKLIGHT INTENSITY

Through this step one selects the intensity of the backlighting or of the LED display:
Lint 1 (minimum) to Lint 5 (maximum).
(!) Lint 1

AutoFF AUTO SWITCH-OFF

It is possible to enable the automatic switch off of the indicator (from 1 to 255 minutes), or disable it; the auto switch-off starts working when, **with unloaded scale,** the weight has not been moved or a key has not been pressed during the set time: the display shows the blinking "- oFF – " message and an acoustic signal is emitted; then the indicator turns off.

Di SAb auto switch-off disabled.
EnAb auto switch-off enabled (one will be asked to enter the number of minutes after which the indicator must turn off: enter a number from 1 to 255).
(!) di SAb

En.ModE ENERGY SAVING MODE

Saves battery time by changing the sensor supply and the time to refresh the display

MAX maximum refresh and sensors always supplied
FASt refresh and sensor powered each 2 seconds
MEdiuM refresh and sensor powered each 5 seconds
SLoW refresh and sensor powered each 10 seconds
Button " each time than a key is actived (l'IPC is in standby , only 1 dot on the display, press a key "-on" is displayed then the weight is displayed during 30 seconds and the unit go in standby mode.
(!) MAX

CLoCK DATE/TIME ADJUSTMENT (OPTIONAL)

In this step one sets the date and time of the indicator; by pressing ENTER one is asked to enter, in this order, the day, month, year, hour and minute.
The entry of each parameter must be confirmed with ENTER
NOTE: the parameter is not displayed if there is no date/time option.

tArE t LOCKED / UNLOCKED / DISABLED TARE SELECTION

LoCK locked tare
unLoCK unlocked tare
diSAb disabled tare
See the "TARE OPERATIONS" section for further functioning details
(!) LoCK

PWd.SET SET ACCESS PASSWORD

on password enabled
oFF password disabled
By selecting on, one can insert a password of up 5 digits (65534 maximum). When finished entering, press ENTER to confirm.
Attention: don't forget it, it will be impossible to enter into the menu if you don't know the password.
(!) oFF

SEtuP SCALE CONFIGURATION

ConFiG (configuration)

Param. METRIC PARAMETERS

nChAn let the number 1

StAbiL FILTER INTEGRATION
By pressing the ENTER key one accesses the selection of the type and degree of filter intervention for the stability of the weight indication:

FLt 0 – 3	filter for simple weighing
h.r.0 – 1	filter for high resolution
dyn.0 – 1	filter for crane scale
doS.0 – 3	filter for dosage
SLW.0-3	filter for rather unstable weight
h.r.2 – 7	filter for high resolution
dyn.2 – 3	filter for crane scale
hold.1 – 5	filter for animal weighing
r.Adc d-s	not operating

The higher the filter value, and greater is its intervention relative to the type of filter used.
Nota: with approved instrument, it is possible to select just the FLt. 0-3; h.r.0-1; dyn 0-1; SLW 0-1
(!) FLt 3

(*) Auto-0 AUTOZERO AT THE START UP
By pressing ENTER one chooses whether to enable (**EnAb**) or disable (**diSAb**) the automatic acquisition of the gross zero upon start-up. By choosing **EnAb**, if upon start-up a detected weight is within +/- 10% of the capacity, it is zeroed; if the weight is not within this tolerance, the non approved instrument's display will show the present weight after a few instants, while an approved instrument will continuously show "ZErO" on the display, until a weight within tolerance is placed.
NOTE: If the indicator is approved, the step may not be modified.
(!) Auto

(*) 0trACk ZERO TRACKING
This menu allows setting the zero tracking, in other words, the compensation parameter of the scale's thermal drift; the set value corresponds to the number of divisions that is reset in the fixed time of 1 second.

tr. ½	+/- half division.
tr. ¼	+/- one fourth of a division
tr. 1	+/- one division.
tr. 2	+/- two divisions.
tr. no	tracking disabled.

NOTE: If the indicator is approved, the step may not be modified.
(!) tr. ½

diU.Stb DIVISIONS BY STABILITY
In this step one enters the number of divisions by which the instrument detects the weight stability; the higher the number of divisions, less is the sensitivity, and consequently the stability is more easily detected. The possible values are 0 (desactived) to 99.
NOTE: with approved instrument, it is possible to enter just the values 1 or 2; if one enters a higher value, it will be confirmed, but when returning to the step, the last stored value (acceptable) is reproposed.
(!) 2

(*) GrAV GRAVITY ZONE AND ZONE OF USE

You may manually enter the gravitational acceleration value; **one must modify just the 5 decimal digits of the gravitational acceleration.**

In case one enters a wrong g value, the minimum decimal value is suggested (9,75001); a wrong value is any decimal number that is not between 9,75001 and 9,84999 (inclusive).

NOTE: If the indicator is approved, the step can not be modified.

(!) 9.80655

CALib. SCALE CALIBRATION

See paragraph “CALIBRATION” section. P50

(*) 0CALib. MAKE A NEW ZERO CALIBRATION

See paragraph “CALIBRATION” section. P52

NOTE: If the indicator is approved, the step is not displayed.

An.out ANALOG OUTPUT (OPTION IPC50)

This output is only available in option. These are 2 analog outputs (0/10V or 4/20mA). The adjustment of these outputs is done through a convertor digital/analog (D/A). The convertor points definit the leval of the output.

Approximate values between the D/A convertor and the analog output.

D/A convertor points	Voltage value (V)	Current values (mA)
1200	0	0
11250		4
52200		20
62300	10	

ModE : selectionning the functioning mode

Ao no analog output not available
Ao G analog output on gross weight
Ao n analog output on net weight

You must definte at least 2 points to calibrate the output.

WGt.1 display corresponding to the step 1of the D/A convertor (from -99999 to 99999)
Pnt.1 convertor point corresponding to the display
WGt.2 display corresponding to the step 2 of the D/A convertor (from -99999 to 99999)
Pnt.2 convertor point corresponding to the display
WGt.3 display corresponding to the step 3 of the D/A convertor (from -99999 to 99999)
Pnt.3 convertor point corresponding to the display

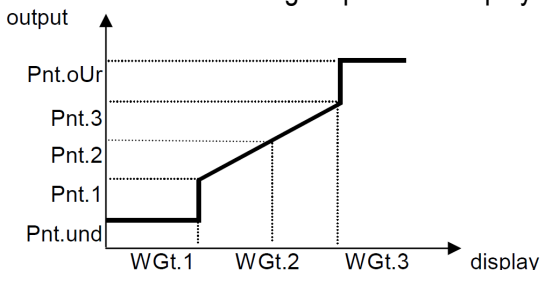
Each time you program the convertor points (Pnt.1 to 3), you can check the analog output in the same time (via a multimeter or PLC) and adjust this value to have a precise output, confirm with key ENTER.

Ex: 0/10V for 0/3000 on the display

WGt.1 = 0 / Pnt.1 = 1200 / WGt.2 = 3000 / Pnt.2 = 62650

If WGt.2 is > WGt.3, the point 3 is not functional.

Pnt.und convertor points allow to set the analog output if the display is < to WGt.1
Pnt.oUr convertor points allow to set the analog output if the display is > to WGt.2 or WGt.3



SeriAL (SERIALS, PRINTOUTS, ETC…)

PC SEL PC serial selection

It is possible to select which port (PC or PRN port) will be used with a PLC, computer.
COM1 : the port PC will be the port to use the command in CoM.PC
COM2 : the port PRN will be the port to use the command in CoM.PC
This other port will use the command CoM.Prn

CoM.Prn PRINTER SERIAL

PrModE TRANSMISSION UPON THE PRINTER SERIAL

Pr- no transmission disabled.
tPr enables the printing with ASCII printer (for example DP190 or TP200).
LP542P enables to print with labelling machine LP542PLUS
ALL.Std continuous transmission with standard string.
ALL.Eht continuous transmission with extended string.
PrPC.St transmission of the standard string upon the pressing of the ENTER key.
PrPC.EH transmission of the extended string upon the pressing of the ENTER key.
NOTE: if the "TOTALIZER" mode (horizontal or vertical) is active, the transmission through the key is carried out by pressing the MODE key.
rEPE.6 transmission to 6-digit remote display.
(!) Pr-no

bAud.Pr SET BAUD RATE

By pressing the ENTER key one accesses the selection of the data transmission speed (measured in Baud = bit/second). The possible values are: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200.
(!) 9600

bit.Pr SET PARITY, WORD, STOP BIT

By pressing the ENTER key one accesses the selection of the available values: n-8-1, n-8-2, n-7-2, E-7-1, E-7-2.
(!) n-8-1

PWr.Prn SETTING AUXILIARY POWER SUPPLY AND PRINTER MANAGEMENT

On the indicator board there is a terminal board called V-AUX (auxiliary power supply), thanks to which it is possible to power the devices (for example a printer); refer to the electric scheme for the characteristics.
In this step one programmes the functioning of the auxiliary output and the management of a possible connected printer:
PWr.EHt with instrument on, printer managed and auxiliary output always active.
PWr.int printer managed, auxiliary output active only when the instrument executes a printout.
Ext.oFF printer managed and auxiliary output always active; the start-up characters are sent to the printer, because the printer is considered to be configured in the energy saving mode.
(!) PWr.EHt

onPrin INSTANTANEOUS ACTIVATION OF AUXILIARY POWER SUPPLY

If the auxiliary power supply has been configured as "**PWr.int**" in the preceding step, by pressing ENTER , it is enabled instantaneously (the "onPri" message is blinking on the display); in this mode it is possible, for example, to power a printer to carry out the upkeep operations.

To exit this step (and therefore disable the auxiliary power supply), press any button. The enabling may be carried out quickly also during the weighing, by pressing the ->0<- key for a few seconds (except in the REPEATER IN RADIO FREQUENCY functioning mode).
NOTE: the parameter is not displayed if "PWr.EXt" has been selected in the "PWr.Prn" step or "Pr- no" in the "PrModE" step.

Prn.CtS RTS/CTS STATUS CONFIGURATION

On the printer serial line the indicator has a CTS input (Clear To Send). A device (like a printer) that is slow in processing the data received, can interrupt the transmission temporarily using this signal.

noCtS no signal
CtSL CTS active low (for LP542, TP200, DP24 printers)
CtSh CTS active high (for DP190 printers)
EmuCtS emulation of the CTS signal: one is asked to enter the number of characters (nChrS), in 3 digits, which will be transmitted to the printer upon each transmission; then one needs to enter the waiting time in milliseconds (tiME), in 4 digits, between a transmission and another.

The TIME OUT of a printout is a minute, in other words, after a minute that the printout is blocked, it is cancelled.
NOTE: the parameter is not displayed if "Pr- no" has been selected in the "PrModE" step.
(!) noCtS

PrConF CONFIGURATION OF THE PRINTOUTS

See the "Print Programming" section for the description of all the menu's parameters.
NOTE: the parameter and all its submenus are not displayed if "Prno" has been selected in the "PWr.Prn" step or "Pr- no" in the "PrModE" step.

CoM.PC PC SERIAL

PCModE TRANSMISSION ON THE PC SERIAL

ondE transmission on external command PC (given from PC or PLC, for example)
rEPE.4 *transmission to 4 digit remote display.*
rEPE.6 *transmission to 6 digit remote display*.
Prin.St. transmission of standard string when the ENTERkey is pressed.
Prin.EH transmission of extended string when the ENTER key is pressed.
NOTE: if the "TOTALIZER" mode (horizontal or vertical) is active, the transmission through the key is carried out by pressing the MODE key.
485 transmission with 485 protocol, by confirming with ENTER/PRINT, one is required to enter the machine code (the message "Ad485" appears for an instant): enter a value between 0 and 98.
ALL.Std continuous transmission with standard string.
ALL.EHt continuous transmission with extended string.
StAb.St transmission with each weigh with standard string.
StAb.EH transmission with each weigh with extended string.

For the transmission modes and protocol specifications, see the "SERIAL PORTS TRANSMISSION MODES" and "TRANSMISSION PROTOCOLS" sections.
(!) OndE

bAud SET BAUD RATE

By pressing the ENTER key one accesses the selection of the data transmission speed (measured in Baud = bit/second). The possible values are: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200.
(!) 9600

bit SET PARITY, WORD, STOP BIT
By pressing the ENTER key one accesses the selection of the available values: n-8-1, n-8-2, n-7-2, E-7-1, E-7-2.
(!) n-8-1

ini.AL INITIALIZES ALIBI MEMORY (option)

The initialisation cancels all the data stored in the Alibi memory; by pressing ENTER one is asked to confirm the operation. The display shows "iALib?"; press ENTER again to confirm or another key to cancel.
At the end the " AL.OK " message appears if the operation is made with success; otherwise the " AL.ERR" message is displayed.
NOTE: the parameter is displayed only if the "Alibi" functioning mode has been selected in the "FunCt" step and if the indicator is not approved.

dSALE

(!) no

inPutS INPUT CONFIGURATION (option IPC50)

In this step one sets the function to link to each input

inP.b1: INPUT 1

nonE	Disabled
ZEro	->0<- Key
tArE	->T<- Key
ModE	MODE Key
EntEr	ENTER Key
diS.kEy	DISABLING OF KEYBOARD

(!) nonE

inP.b2: INPUT 2
The programming of the input 2 is done as described for input 1.

NOTE: In case 2 inputs are simultaneously enabled with the same function, just the input 1 is taken into consideration and if diS.kEy has been set on one input, the other input will be disabled.

outPut RELAY CONFIGURATION (option IPC50)

In this step one sets the function to be linked to each relay (optional, 2 relays).
NOTE: the parameter is displayed only if the "StPG" or "StPn" parameter has been selected in the "FunCt" step.
rEL.b.1 RELAY 1

FunC RELAY FUNCTION

rEL.no	relay not managed.
iSt.	relay managed with hysteresis.
no.iSt	relay managed without hysteresis

(!) rEL.no

no/nC NO/NC CONTACTS

no	relay 1 normally opened.
nC	relay 1 normally closed.

(!) no

onStAt SWITCHING CONDITION

drCt the relay is activated as soon as the weight reaches the set threshold, (independently from the stability).

StbL the relay is activated in the moment in which the weight, after reaching the set activation thresholds, becomes stable.

(!) drCt

The same configurations are valid for:
rEL.b.2 RELAY 2

dEFAu INITIALIZATION OF THE INSTRUMENT

Through this step one can initialize the instrument with the subsequent activation of the default parameters. By pressing ENTER/PRINT, a confirmation message ("dFLt?) will appear: confirm again with ENTER or exit with any other key.

NOTE: The initialization of the instrument causes a cancellation of the present calibration and the activation of the default parameters. In any case if one exits the setup environment WITHOUT CONFIRMING the modification made, all the parameters of the last saving made will remain (including the calibration).

In case of approved instrument, the default DOES NOT HAVE EFFECT on the metrological parameters (those marked with (*)).

After this step, you must go to the parameter KEYb and change the parameter norM to EHt.

KEYb SETTING 5 OR 17-KEY KEYBOARD

By pressing ENTER the display shows the last saved configuration, which may be:

norM 5-key keyboard (for IPC20)

EHt 17-key keyboard (for IPC50)

NOTE: For a correct functioning, it is necessary to set the type of keyboard in relation to the model .

(!) EHt

diAG (DIAGNOSTICS MENU)

It is a submenu inside which it is possible to check the software components and the scale hardware.

PrG.Uer CHECKING THE SOFTWARE VERSION

By pressing ENTER the instrument shows the software version in the XX.YY.ZZ. format.

diV.int CALIBRATION INTERNAL DIVISIONS

By pressing ENTER the instrument shows the calibration internal divisions. Press “C” to exit this step.

AdC.uV MICROVOLTS

By pressing ENTER the instrument shows the output signal of the loadcell (in microvolt) relative to the weight on the scale.

Note: The maximum voltage that the instrument accepts in input is 30 mV (30000 μV); the weighing system is powered by the indicator at 5 Vdc.

A correct operation will have a value less than 30000 with a weight of full scale capacity on the weighing system.

AdC.Pnt CONVERTER POINTS

By pressing ENTER the instrument shows the A/D converter points relative to the weight on the scale. Press “C” to exit this step.

diSPLA DISPLAY TEST

By pressing ENTER the instrument turns on all the display segments one at a time, after which it exits automatically from the step. Press “C” to exit this step.

KEYb. KEYBOARD TEST

By pressing ENTER the instrument displays 0000; by pressing the keys one at a time, the relative codes are displayed on the display. One exits pressing the same key three times.

SEr SERIALS TEST

By pressing ENTER the instrument displays “ S xy” in which x indicates the status of the printer serial port while y indicates the status of the PC serial port. Both can take on two values:

0 Serial port does not work

1 Serial port works

During the test one should short-circuit T/+ with R/- (in the PC terminal board) and TXD with RXD (in the PRN).

Furthermore the ASCII “TEST”<CRLF> string is continuously transmitted on both the serial lines.

CtS.St TEST OF THE CTS STATUS

By pressing ENTER one views the status/level of the CTS signal of the printer (on) connected to the PRT serial port.

bt.AdC READING OF THE BATTERY VOLTAGE VALUE

Display in alterning the tension of the battery and the corresponding battery level (in percentage).
Press “ENTER/PRINT” to exit this step

PW.AdC READING OF THE EXTERNAL POWER SUPPLY VOLTAGE VALUE

Not used

outPut TEST OF THE I/O EXPANSION BOARD RELAYS (OPTIONAL)

By pressing ENTER the instrument displays “rEL.b.1” and enables relay 1 of the expansion board; press the ->0<- or ->T<- key to enable this other relay of the connected expansion boards.
Press “C” to exit this step

InPutS TEST OF THE I/O EXPANSION BOARD INPUTS (OPTIONAL)

By pressing ENTER the instrument displays “ i.bx-y” in which x, y indicate:
x – the input which is controlling 1, 2, 3, 4; to change the input which one wants to control press the ZERO or TARE keys.
y - the input status:
0 Disabled input
1 Enabled input
- communication error with I/O expansion board or board not present.
Press “C” to exit this step

Ser.nuM : internal serial number

Anout ANALOG OUTPUT TEST (if option if available)

Allow to simulate the analog output (0/10V or 4/20mA) if you modify the value of the convertor points.
This value can be set from 0 to 65535, confirm by key ENTER, exit this step by C key.

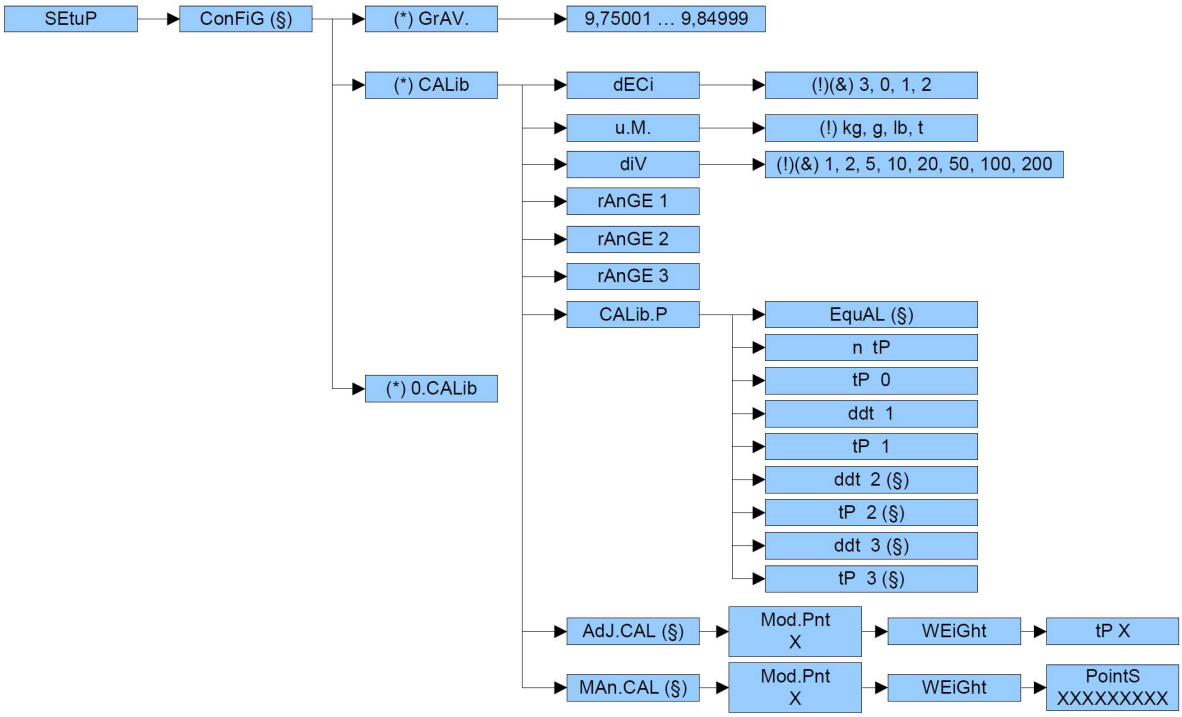
Approximate values between the D/A convertor and the analog output.

D/A convertor points	Voltage value (V)	Current values (mA)
1200	0	0
11250		4
52200		20
62300	10	

16 CALIBRATION

Nota : if the IPC50 has never been calibrated, the message “Err 39” will be displayed, press the key ->T<- to enter into the menus.

IMPORTANT: with approved instrument, the “GrAV”, “rAnGE 1”, “rAnGE 2”, “rAnGE 3”, “diV”, “dECi”, “u.m”, “ntP”, “ddt1” parameters **are not modifiable;** the “0Calib.”, “tP0”, “tP1”, “ddt 2”, “tP2”, ddt 3”, “tP3” **are not displayed.**



->0<-	Decreases the selected digit (blinking).
->T<-	Increases the selected digit (blinking).
MODE	Selects the digit to be modified (blinking), from left to right.
C	Quickly zeros the displayed value.
NUMERICAL KEYS	Allow to enter the numerical value, from right to left.

To enter it, turn on the IPC (C key) and press the ->0<- key when the version software is shown (XX.YY) the display shows:
03.01 the instrument type and the metrological software version, then **XX.YY.ZZ** is the installed software version, then **MAH xxxxx** (max capacity), then **CloCK** if there is the optional board with date and time, then **bt X** in which X is a number from 0 to 9 which indicates the battery level or If the instrument is powered by the mains, the message **"PoWEr"** is displayed, then **-K- X.YY** in which K identifies the type of keyboard: K=0, 5-key keyboard, K=1, 17-key keyboard and X.YY is the installed software version, then the auto test (99999; 88888….), press the key ->T<- during this test.
The indicator shows the first parameter “TyPE”.

1) Select the **SEtuP** (with key ->T<- then ENTER) → **ConFiG** (with key ENTER) → **CALib** (with key ->T<-) and press ENTER.

2) Select the **“**dECI” step (position of the decimal point) and press ENTER
The selectable values are 1.0 (1 decimal), 1.00 (2 decimals), 1.000 (3 decimals), 100000 (no decimal); confirm with ENTER
(!) 1.0

3) Select the "u.M.**"** step and press ENTER
   Set the unit of measure (g, Lb, t, kg) and press ENTER
   (!) kg

4) Select the "diU**"** step and press ENTER
   Set the minimum division and press ENTER (selectable values: 1, 2, 5, 10, 20, 50).
   Ex: set 1: the right digit could change 1 by 1 : 0 , 1 , 2 …..,8 , 9
   Set 2: " 2 by 2 : 0 , 2 , 4 , 6 , 8
   Set 5: " 5 by 5 : 0 or 5
   Set 10: the right digit could not change (always 0) and the digit just on the left could change 1 by 1
   (!) 1

5) Select the "rAnGE1" step and press ENTER;
   Set the total capacity of the scale or the first range in case of multirange functioning (ex: 002.000 it means maximal display will be 2.000) the position of the decimal point will be set later, step dECI.
   Confirm with the ENTER key.
6) Select the "rAnGE2" (if the system is a simple range, SET this value to 0) and press ENTER
   Set the capacity of the second range and press ENTER

7) Select the "rAnGE3" (if the system is a simple or double range, SET this value to 0) and press ENTER
   Set the capacity of the triple range and press ENTER

8) Select the "CALib.P" ,calibration steps, and press ENTER

9) Select the "ntP" step and press ENTER
   With the ->0<- or ->T<- keys set the number of points with which one wants to calibrate (from 1 to 3, with 1 it does the zero point and one weight point) and press ENTER
   N.B.: the calibration points must be increasing (point 1 < point 2 < point 3).

10) Select the "tP0" (scale zero point) step and recording of the signal of the loadcell: unload the scale (position "0") and wait a few seconds, then press ENTER, the unit will go automaticly to the next step after recording the sensor signal.

11) Select the "ddt1" (setting first reference weight) step ; press ENTER/PRINT, enter the weight value that you are applying on the loadcell and confirm with ENTER

12) Select the "tP1" (acquisition of first reference weight) step: put the weight (equal at the value on ddt1) on the loadcells, wait a few seconds and press ENTER, the unit will go automaticly to the next step after recording the sensor signal.

13) **If 1 calibration point has been set**, once the weight acquisition has been made, the display shows for an instant the value of the internal divisions and then the "ntP" step.
    If there are 2 or 3 calibration points, repeat the operations for the "ddt2", "tP2", "ddt3", "tP3" points.1

14) Once the calibration has been made of all the necessary points, press the C key various times until the indicator shows "SAVE? in the display: confirm with ENTER to memorize and return to weighing.

Adj.CAL MODIFICATION OF A CALIBRATION POINT

It is possible to modify a calibration point in a simple way without remake the zero calibration.
SEtuP -> ConFIG -> CALiB -> Adj.CAL

Confirm with key ENTER, Mod.Pnt appears following of 1. The means that you can modify 1 calibration point. (you can change unitl 3 points), confirm with key ENTER.
WEiGht appears following of a number, you must enter the value of the weight that you will load on the system to make the calibration, confirm with ENTER.
Tp 1 appears, put the weight on the system and press ENTER. Once the acquisition of the value from the loadcells have been done, the display shows Man CAL if you have selest only 1 point, in other case make all the points wished.
Press the C key various times until the indicator shows “SAVE? in the display: confirm with ENTER to memorize and return to weighing

Man.CAL
Not used

16.1 QUICK CALIBRATION OF ZERO

It is useful to calibrate just the point of ZERO when a permanent tare weight is put onto the platform (for example a roller unit).

1) Enter in the SET-UP environment of the scale (when turned on, press for an instant the TARE or the ZERO key during the countdown).
2) Enter in the **SEtuP → ConFiG → 0.CALib** step and press ENTER key (the display shows “CAL.0?”)**.**
3) Put the tare on the scale and press ENTER key to confirm the operation.
4) Once the zero calibration is made, press many times the C key until the indicator shows “SAVE?" in the display, confirm with ENTER to store and return to weighing mode.

16.2 IN CASE THE ZONE OF USE IS DIFFERENT FROM THE CALIBRATION ZONE ONE SHOULD:

1) Enter in the SET-UP environment of the scale (when turned on, press for an instant the TARE or the ZERO key during the countdown).
2) Enter in the **SEtuP → ConFiG → GrAV** step and select the CALIBRATION ZONE.
3) Carry out the calibration as previously described.
4) Save and exit from the SET-UP environment (press many times the C key until the indicator shows “SAVE? in the display and confirm with ENTER
5) Enter the SET-UP environment of the scale and enter the **SEtuP → ConFiG → GrAV** step and select the ZONE OF USE.
6) Save and exit the SET-UP environment.
7) The weight error caused by the error of a different gravitational attraction value between the calibration zone and the zone of use is corrected automatically.

With APPROVED instrument, when turned on, the value of the zone of use or the gravitational acceleration value is displayed.

17 DISPLAY OF THE GEOGRAPHICAL UTILISATION AND CORRECTION ZONE OF THE WEIGHING ERROR DUE TO THE DIFFERENT GRAVITATIONAL ATTRACTION BETWEEN THE CALIBRATION AND UTILISATION ZONE.

17.1 INDICATION AND/OR DISPLAY OF THE GEOGRAPHICAL UTILISATION ZONE (Compulsory for the legal type instruments)

This instrument conforms to the laws currently in force regarding non-automatic weighing instruments. Such g-sensitive instruments are influenced by the gravitational acceleration value “**g**” of the utilisation zone hence it is compulsory to indicate, with a label or on the display, the coded name of the utilisation zone where the weighing machine can be used.
The approved instrument displays, upon start-up, the gravitational zone of use for a few seconds, after the name and the installed software version.

17.2 CORRECTION OF THE WEIGHING ERROR INTRODUCED BY A DIFFERENT GRAVITATIONAL ATTRACTION VALUE BETWEEN THE CALIBRATION AND UTILISATION ZONE (compulsory for legal type instruments).

This instrument conforms to the laws currently in force regarding non-automatic weighing instruments. Such g-sensitive instruments are influenced by the gravitational acceleration value "**g**" of the utilisation zone so a special programme has been created to compensate for any differences in the gravitational attraction between the place where the weighing machine is calibrated and the place of utilisation.
During configuration the "**g**" values relative to the utilisation zone and to the zone of calibration are entered at a certain programming step which eliminates the weight error introduced by the different gravitational attraction value.
The approved instrument displays, upon start-up, the gravitational zone of use for a few seconds, after the name and the installed software version.

18 SERIAL OUTPUTS

The instrument has two bidirectional serial outputs, which have the output in ASCII code compatible with the majority of printers, remote displays, PCs and other devices.

18.1 PC SERIAL PORT

It is bi-directional and uses an RS232 for transmitting data. It is mainly used to connect computers, PLCs, additional remote displays, and it can be converted into RS485 (options). The transmission speed may be selected in the SET UP among these: 1200, 2400, 4800, 9600, 19200, 38400, 57600 Baud (bit/sec.).

RS232 CONNECTION FROM PC TO IPC50:

	PC 9 pins	PC 25 pins	IPC50 Serial line PC	IPC20 RJ45 connector
RX	2	3	TXPC	6 TX
TX	3	2	RXPC	3 RX
GND	5	7	GND	5 GND

Below is shown the connection in RS232 between the IPE50 in mode REPEATER and the IPC50:

	IPE50 in mode repeater Serial line	IPC50 Serial line
RX	16	TXPC
GND	17	GND

The transmission of data through the PC serial port can be configured in different ways, according to the setting of the "PCMode**"** step in the SET-UP environment: on request, continuous, on stability or in RS485 mode.
Refer to the "TRANSMISSION MODES OF THE SERIAL PORTS" section for the functioning specifics.

18.2 PRN (printer) SERIAL PORT

It is uni-directional and uses an RS232/TTL for transmitting data, selectable through the jumper on the board; it is mainly used to connect to printers, computers and PLCs. The transmission speed may be selected in the SET UP among these: 1200, 2400, 4800, 9600, 19200, 38400, 57600 Baud.

connection between the TP200 printer and the IPC50 unit:

TP200 Terminal board	IPC50 Serial line PRN
GND	GND
RX	TXPR
DTR	CTS

connection in RS232 between the IPE50 in mode REPEATER and the IPC50:

IPE50 XLR
GND
RX

18.3 SERIAL PORT TRANSMISSION MODES

18.3.1 PC PORT

Please find below the various selectable serial weight transmission modes of the PC serial port through the corresponding "PCModE" StEP of the SET-UP environment.

- **TRANSMISSION REQUESTED FROM AN EXTERNAL DEVICE** ("ondE" parameter)
  In this case the indicator waits for a command before transmitting (see the section "SERIAL COMMANDS FORMAT").
  With Baud rate at 9600, through the READ command, it is possible to make up to 10-11 requests per second, while with Baud rate at 57600 one can arrive at 16.
  The transmission works with weight <, =, > 0 with approved or unapproved instrument.
  NOTE: This protocol is active also in the other functioning modes, only on the PC serial output.

- **4 – 6 DIGIT REMOTE DISPLAY TRANSMISSION** ("rEPE.4" and "rEPE.6" (for RPA60) parameter)
  The weight displaying takes place both in the indicator as well as in a weight repeater of 4 or 6 digits, (normally the capacity will be properly set up for a correct displaying).
  N.B. When either transmission mode is selected, the relative serial output is automatically set to 4800, N – 8 – 1.

- **TRANSMISSION WHEN THE PRINT KEY IS PRESSED** ("Prin.Std", "PrinEX" parameter)
  The instrument communicates the weight data through the serial port when the ENTERkey is pressed (except for in the TOTALIZER mode where one should press the MODE key).
  For non approved instruments:
  The transmission takes place if the weight is stable and the net weight is > 0.
  Reenabling the transmission depends on how the "rEACt" step has been set in the SET-UP environment (passing by zero of the NET weight, weight instability or always).
  For approved instruments:
  The transmission takes place if the weight is stable and the net weight is > 20 divisions.
  Reenabling the transmission depends on how the "rEACt" step has been set in the SET-UP environment (passing by zero of the NET weight, weight instability or always).
  The data is transmitted using the standard string (Prin.Std) or the extended string (PrinEX); see the "TRANSMISSION PROTOCOL" section for the description of the two strings.

- **TRANSMISSION IN RS 485 SERIAL MODE (option no available)** ("485" parameter)
  The protocol is the same as the transmission upon request (ondE parameter), except that the instrument responds only if its machine code is the one requested (before the request the machine code must be put, I.E. 00READ<CRLF>).
  If a broadcast address command (99) is received no answer is given. If the command is correct it is executed anyways.

- **CONTINUOUS TRANSMISSION** ("ALL.Std" and "ALL.EXt" parameter)
  This mode is used for interfacing to the PC, remote displays and other devices which request a constant updating of the data independently from the weight stability.
  The instrument transmits data with each converter read operation:
  - With Baud rate at 9600 one can obtain up to 10 transmissions per second.
  - With Baud rate at 4800 one can obtain up to 8 transmissions per second.
  The transmission works with weight <, =, > 0 with approved or unapproved instrument.
  The data is transmitted using the standard string (ALL.Std) or the extended string (ALL.EXt); see the "18.5 TRANSMISSION PROTOCOL" section for the description of the two strings.

- **TRANSMISSION ON STABILITY** ("StAb.St" and "StAb.EX" parameter)

Each time a weight on the scale becomes stable, a communication string is transmitted on the PC serial port.

For non approved instruments:

- The transmission takes place if the weight is stable and the net weight is > 10 divisions.
- Reenabling the transmission depends on how the “rEACt” step has been set in the SET-UP environment (passage by zero of the NET weight or instability of the NET weight of 10 divisions; by choosing “always” it works upon instability).

For approved instruments:

- The transmission takes place if the weight is stable and the net weight is > 20 divisions.
- Reenabling the transmission depends on how the “rEACt” step has been set in the SET-UP environment (passage by zero of the NET weight or instability of the NET weight of 20 divisions; by choosing “always” it works upon instability).

The data is transmitted using the standard string (StAb.St) or the extended string (StAb.EX); see the “TRANSMISSION PROTOCOL” section for the description of the two strings.

18.3.2 PRN PORT

Please find below the various selectable serial weight transmission modes of the PRN serial port through the corresponding “PrModE” StEP of the SET-UP environment.

- **TRANSMISSION TO PRINTER** (“tPr” and “LP542” parameter): requests the use of the print key on the indicator (prints upon request of the operator). The print command is inhibited if the weight is in motion and in all other circumstances in which the data is not valid (see “EXECUTION OF THE PRINTOUTS” section, **USER MAN.REF.**).

- **CONTINUOUS TRANSMISSION** (“ALL.Std” and “ALL.EXt” parameter): see the “ALL.Std” and “ALL.EXt” modes of the PC port.

- **TRANSMISSION OF THE PC STRING UPON PRESSURE OF THE PRINT KEY** (“PrPC.St” and “PrPC.EX” parameter): see the “Prin.St” or “Prin.EX” mode of the PC port

- **TRANSMISSION TO 6-DIGIT REMOTE DISPLAY** (“rEPE.6” parameter): see the “rEPE.6” mode of the PC port.

THE CONNECTION AND THE SOFTWARE CONFIGURATION OF THE SERIAL OUTPUTS MUST BE CARRIED OUT BY TECHNICAL PERSONNEL WHO KNOW THE PROCEDURES ON THE BASIS OF THE NEEDS OF THE USER.

18.4 SERIAL COMMANDS FORMAT

Version reading command
[CC]VER<CR LF>
Instrument response: [CC]VER,vvv,DFW06<CR LF>
In which: vvv is the firmware version

Extended weight read command
[CC]REXT<CR LF>
Instrument response: EXTENDED STRING (see "TRANSMISSION PROTOCOLS" section).

Weight read command
[CC]READ<CR LF>
Instrument response: STANDARD STRING (see "TRANSMISSION PROTOCOLS" section).

Weight reading command with sensitivity times 10
[CC]GR10<CR LF>
Instrument response: STANDARD STRING (see "TRANSMISSION PROTOCOLS" section).

Reading command of microvolt relative to the weight
[CC]MVOL<CR LF>
Instrument response: STANDARD STRING (see "TRANSMISSION PROTOCOLS" section).

Reading command of converter points relative to the weight
[CC]RAZF<CR LF>
Instrument response: STANDARD STRING (see "TRANSMISSION PROTOCOLS" section).

Tare command
[CC]TARE<CR LF> or [CC]T<CR LF> (short command).
Instrument response: [CC]OK<CR LF> if the command has been RECEIVED; the instrument's response does not mean necessarily that the instrument executes the tare.

Zero command
[CC]ZERO<CR LF> or [CC]Z<CR LF> (short command)
Instrument response: [CC]OK<CR LF> if the command has been RECEIVED; the instrument's response does not mean necessarily that the instrument executes the zero.

ESC or C command
[CC]C<CR LF>
Instrument response: [CC]OK<CR LF> if the command has been RECEIVED; the instrument's response does not mean necessarily that the instrument executes the command.
The command works also within the SET-UP environment.

Test Command
[CC]ECHO<CR LF>
Instrument response: [CC]ECHO<CR LF>.

Reading command of power supply status
[CC]ALIM<CR LF>
Instrument response: [CC]PW: p BT: b
Power supply: p : 0 if powered by battery
1 if powered by the main
Battery level : b : from 0 to 9

Setpoint command (if the option is installed)

[CC]STPTntxxxxxxtyyyyyy<CR LF>

in which: n indicates the SETPOINT number (1, 2,)

t → **F** if the following weight value indicates the DISABLING of the relays (OFF).

t → **O** if the following weight value indicates the ENABLING of the relays (ON). xxxxxx and yyyyyy take on the setpoint value of disabling or enabling: the digits must be entered WITHOUT the decimal point, omitting the NON significant zeros.

Instrument responses:[CC]OK<CR LF> in case of syntax and correct values.

[CC]NO<CR LF> in case of correct syntax but wrong values.

Note: if the setpoint is programmed without hysteresis, the value xxxxxx must be equal to yyyyyy.

Example of instrument with capacity 10,000 kg and division 1 g:

Command: **STPT1F5000O6500** (Disabling relay 1 at 5 kg and enabling at 6,5 kg)

Response: **OK**

NOTE: An error response of the instrument happens in the following cases:

- one of the two entered values is greater than the capacity.
- one of the two entered values has a minimum division that is inconsistent in comparison to the one set in the instrument.
- the disabling value is greater than that of enabling.
- The command is wrong

Print Command

[CC]PRNT<CR LF> or [CC]P <CR LF> (short command).

Instrument response: [CC]OK<CR LF> if the command has been RECEIVED; the instrument's response does not mean necessarily that the instrument executes the printout.

Tare insertion command

[CC]TMANVVVVVV<CR LF> or [CC]WVVVVVV <CR LF> (short command)

in which: VVVVVV: manual tare value with the decimal point, from 1 to 6 characters; the non significant zeros can be omitted.

Instrument response: [CC]OK<CR LF> if the command has been RECEIVED; the instrument's response does not mean necessarily that the instrument executes the tare.

Command for viewing temporary message on the display

[CC]DISPNNVVVVVV <CR LF>

in which: NN: is the indicator display number, standard 00 (ascii hex)

VVVVVV is the message.

To cancel the message, send DISPNN or see next page (DINT command)

NOTES

In the case in which the display shown in the command is of the numeric type (for example the standard display 00), if in the transmitted message there are two consecutive points the message is stopped after the first of the two points. When the display is showing a message transmitted serially through the DISP command, the indicator does not display those messages usually shown in the scale status (ZERO, TARE, HOLD, ...).

Instrument response: [CC]OK<CR LF>

The message remains for the time set through the DINT command:

The ASCII characters having the decimal code greater than 31 are accepted.

With approved instrument:

One needs to wait the end of the current visualisation before being able to view the next one.

Command for setting display visualisation interval

[CC]DINTNNNN<CR LF>

in which: NNNN is the visualisation interval (in milliseconds), expressed in ascii hex character; for example, in order to set a visualisation time of 2 seconds (2000 milliseconds, which converted into hex it becomes 07D0), the command becomes DINT07D0<CR><LF>.

By setting a time equal to zero, the message transmitted with the DISP command remains permanently shown on the display.

Instrument response: [CC]OK<CR LF>

With approved instrument:

The minimum settable time is 1 millisecond (0001HEX), and maximum settable time is 5 seconds (5000 milliseconds, 1388 HEX).

PC confirmation command

[CC]PCOK<CR LF>

The indicator shows on the display the "-PCOK-" message for about 2 seconds.

Instrument response: [CC]OK<CR LF>.

Serial command for setting the apw (only for the counting operating mode)

[CC]SPMUvvvvvvvv <CR LF> or [CC]Xvvvvvvvv<CR LF> (short command).

in which: vvvvvvvv is the apw (up to 8 characters with decimal point); maximum value: 9999.999

System response: [CC]OK<CR LF>.

For example, to set a APW of 1.55 g, the command is the SPMU1.55<CR LF> or SPMU0001.550 <CR LF> and all the various combinations adding zeros to the right or to the left but taking into consideration that the maximum length of the APW field is 8 characters.

NOTES:

- The APW are not accepted in the SPMU.12<CRLF> format; these must be in the SPMU0.12<CRLF> format.
- the APW are not accepted equal to zero.

Serial command which supplies the indicator status

[CC]STAT<CR LF>

Instrument response:

[CC]STATXX<CR LF>

in which XX is a decimal value which supplies the status of the indicator; the possible values are:

XX	**indicator status**
00	normal scale status
01	normal scale status in input
02	instrument in technical set-up
04	in boot phase
05	in rx/tx set-up phase
06	in test phase of the serial ports
07	in print test
08	in firmware update phase
09	in stand-by
10	in automatic zero phase
12	in optoisolated inputs test phase

Key pressure simulation command

[CC]KEYPXX<CR LF>

in which XX is the code of the pressed key:

00: MODE key; 01: F key; 02: ENTER key; 03: TARE key; 04: scale ZERO key; 05: numeric 0 key; 06: numeric 01 key; 07: numeric 2 key; 08: numeric 3 key; 09: numeric 4 key; 0A: numeric 05 key;

0B: numeric 06 key; 0C: numeric 07 key; 0D: numeric 08 key; 0E: numeric 09 key; 0F: INFO key;
10: C key.
Instrument response: OK<CR LF>: accepted command.
In case the simulated key has two linked functions (key briefly pressed or at length, like the TARE key), if the KEYP command is followed by the release command of the (KEYR) key within a maximum time of 1,5 seconds, the simple function will be executed (key briefly pressed); otherwise the second function will be made (key pressed at length).
NOTA: The instrument does not transmit the OK answer to the following short commands: P, Q, T, W, X, Z.

LEGEND
[CC]= instrument code, e.g.. 00 (only with RS485 protocol).
<CR LF>= Carriage Return + Line Feed (ASCII characters 13 and 10).

Key disabling command
[CC]KEYEt<CR LF>
t-> E to enable the keys
t-> D to disable the keys
Response:
[CC]OK<CR LF>

Status command of the keys
[CC]KEYE<CR LF>
Response:
[CC]KEYEE<CR LF> if the keyboard is enabled
[CC]KEYED<CR LF> if the keyboard is disabled

Tare block command
[CC]TLCKt<CR LF>
t-> E to lock the tare
t-> D to unlock the tare
Response:
[CC]OK<CR LF>

Tare status command
[CC]TLCK<CR LF>
Response:
[CC]TLCKE<CR LF> if the tare is locked
[CC]TLCKD<CR LF> if the keyboard is unlocked

SERIAL ERRORS
Upon each serial command received the instrument transmits a response which may be a response to a command (see the command description) or the indication of the command error:

ERR01<CR LF> it is shown when a correct command is transmitted from the PC to the indicator however it is followed by letters inserted involuntarily (I.E.: READF TARES…).
ERR02<CR LF> it is shown when a correct command is transmitted from the PC to the indicator, but containing wrong data.
ERR03<CR LF> it is shown when an unallowed command is transmitted. It may be a command not used in the selected functioning mode or the command reaches the indicator in the instant in which the keyboard buffer is already occupied by another command.
ERR04<CR LF> it is shown when an inexistent command is transmitted.

18.5 TRANSMISSION PROTOCOLS

The weight data transmission on the PC and PRT serial ports may take place in two formats:

18.5.1 STANDARD STRING

[CC]hh,kk,ppppppppp,uu + CR + LF

in which: **[CC]** INSTRUMENT CODE IN THE FORMAT OF TWO ASCII DECIMAL DIGITS
ONLY IN THE CASE THAT THE 485 PROTOCOL IS SELECTED (FOR EXAMPLE 00).

hh	UL	Underload	
		OL	Overload
		ST	Stability of the display
		US	Unstability of the display
		TL	Active inclination input
kk	NT	Net Weight	
		GS	Gross Weight
		GX	Gross weight with sensitivity times 10
		VL	Value in microvolt relative to the weight
		RZ	Value in converter points relative to the weight

ppppppppp 8 digits (including any sign and decimal point) which identify the weight. The insignificant digits are filled with spaces. Through the MVOL and RAZF command the indicator transmits the relative value on 10 digits instead of 8.

uu Unit of measurement "kg" "**b**g" "**bt**" "lb" "mv" (microvolts) "vv" (converter points)

CR Carriage Return (13 ascii decimal character).

LF Line Feed (10 ascii decimal character).

The transmitted weight is the GROSS weight (GS) if no TARE WEIGHT has been entered; otherwise, the NET WEIGHT (NT) will be transmitted.

18.5.2 EXTENDED STRING

[CC]B,hh,NNNNNNNN,YYTTTTTTTT,PPPPPPPP,uu + CR + LF

in which: **[CC]** INSTRUMENT CODE IN THE FORMAT OF TWO ASCII DECIMAL DIGITS
JUST IN CASE THE 485 PROTOCOL IS SELECTED (FOR EXAMPLE 00)

B scale number (1 in scale mode, 0 in pallet truck scale mode).

hh	UL	Underload
	OL	Overload
	ST	Stability of display
	US	Instability of display
	TL	Active inclination input

NNNNNNNN net weight on 8 characters including possible sign and decimal point

YY "PT" if the tare is manual, otherwise YY = " " (two empty spaces) if the tare is semiautomatic.

TTTTTTTT tare weight on 8 characters including possible sign and decimal point.

PPPPPPPP number of pieces on 8 characters, equal to 0 if the indicator is in a functioning mode other than the counting mode.

uu Unit of measure "Kg" "**b**g" "**bt**" "lb

CR Carriage Return (13 ascii decimal character)

LF Line Feed (10 ascii decimal character)

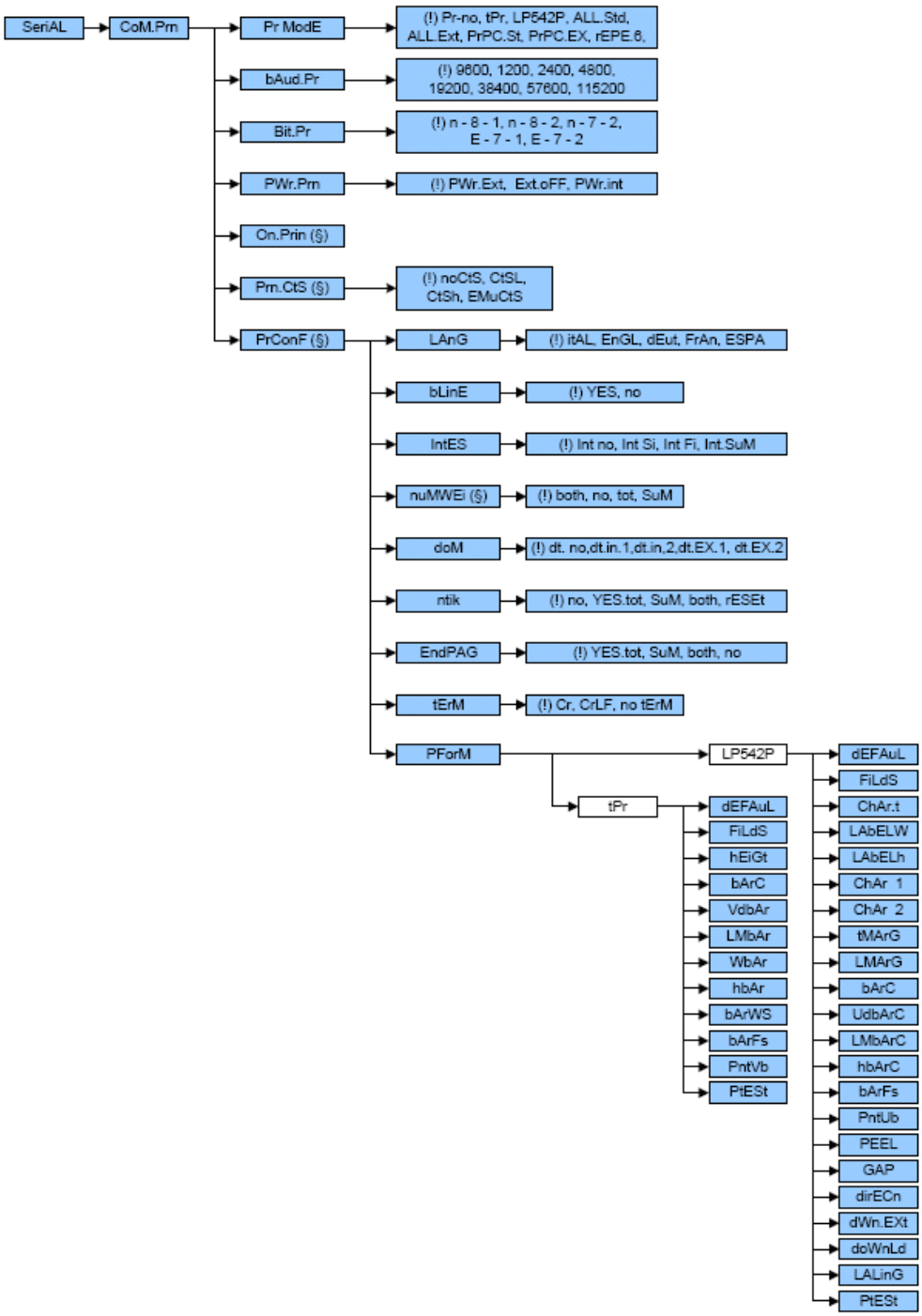
The insignificant digits of the net, tare, gross tare weights and the pieces of the various channels will be filled with spaces (space character, 32 decimal ascii code character)

LEGEND: b space character, 32 decimal ascii character.

19 PROGRAMMING THE PRINTOUTS

If in the set-up environment the presence of the printer has been configured correctly, the indicator carries out the print functions; each functioning mode has specific printouts, shown in the “Print examples” . In any case, it is possible to define some printing fields, the size of the characters, a heading and other options depending on the printer and the predefined functioning mode.

In the “Pr.Mode” step of the set-up environment it is possible to select whether to print on the TP200 printer or the LP542PLUS labeller; see the following steps for all the printing options.



1) Enter the SET-UP environment of the scale (when turned on, press for an instant the ZERO or TARE key during the countdown).
2) Select the **SEtuP → Com.Prn → PrMode** step and press ENTER
3) Select the desired printer (“tPR” or “LP542P) and press ENTER

4) In the "SET-UP ENVIRONMENT" section see the descriptions of the "baud.Pr", "Bit.Pr", "PWr.Prn", "on.Prin" and "Prn.CtS" steps for configuring the baud rate, the number of transmission bits, the printer's power supply and the CTS signal.
5) Select the "**Pr Conf**" step and press ENTER/PRINT: one enters the **PROGRAMMING MENU OF THE PRINTOUTS.** Below is the description of the steps.
6) Once the setting have been made, press the C key various times until the indicator shows "SAVE? In the display: confirm with ENTER to memorize and return to weighing.

PrConF *CONFIGURATION OF THE PRINTOUTS*

In this step one enters the print programming submenu.
NOTE: the parameter and all its submenus are not displayed unless the "Prno" parameter has been selected in the "PWr.Prn" step or "Pr- no" in the "PrModE" step.

LanG *PRINTING LANGUAGE*

One selects the language in which the printouts are carried out:
ItAL italian.
EnGL english.
dEut german.
FrAn french.
ESPA spanish.

bLinE *EMPTY LINE AT THE BEGINNING OF THE PRINTOUT*

YES at the beginning of each printout an empty line is inserted.
no no empty line.
(!) YES

IntES *PRINTING OF HEADING*

Int no no heading.
Int Si prints the heading; in the totalizer mode it is printed only upon the first totalisation (in other words if the partial total is zero).
Int Fi prints the heading; in the totalizer mode it is printed in all the totalisations.
Int.SuM prints the heading; in the totalizer mode it is printed in all the totalisations and in the partial total.
NOTE: the selection of the "Int Si", "Int Fi", "Int.SuM" allows the heading configuration (see later on the "HEADING PRINTING" section).
(!) Int no

nuMWEi *PRINTING OF NUMBER OF WEIGHS (ONLY FOR TOTALIZER MODE)*

no does not print the number of weighs.
tot prints the number of weighs only in the single totalisation.
Sum prints the number of weighs only in the partial total.
both prints the number of weighs in the totalisations as well as in the partial total.
NOTE: the parameter is displayed only if the "totalizer" functioning mode has been selected.
(!) both

dOM *PRINTS DATE AND TIME*

dt. no the date and time are not printed.
dt.in.1 the date and time are printed using the clock inside the printer; in the totalizer functioning mode the date and time are printed just in the total and not in the single totalizations

dt.in.2 as above, but in the totalizer functioning mode the date and time are printed also in the single totalizations.
dt.EX.1 like “dt.in.1” but the indicator’s date and time board (optional) is used.
dt.EX.2 like “dt.in.2” but the indicator’s date and time board (optional) is used.
NOTE: The date and time is printed, if programmed, before the possible barcode, which is always at the end of the printout
(!) dt. No

ntik *PRINTS TICKET NUMBER*

The ticket number is a sequence number which increases upon each printing made, this number, between 1 and 65535, is kept in memory also when the instrument is turned off.
no does not print the ticket number.
yes.tot prints the ticket number; in the totalizer functioning mode it is printed only in the single totalisations.
SuM prints the ticket number; in the totalizer functioning mode it is printed just in the partial total.
both prints the ticket number; in the totalizer functioning mode it is printed in the totalisations as well as in the partial total.
rESEt by pressing ENTER the sequence number in the ticket is zeroed.
NOTE: The ticket number, if programmed, is printed after the weight data.
(!) no

EndPAG *SELECTION OF PAGE END PRINTING*

This step allows to print 2 empty lines at the end of each printout (if “DP190” is selected in the “PrModE” step) or an end label (if “LP542” is selected in the “PrModE step).
no does not print the page end
yes.tot prints the end page; in the totalizer functioning mode it is printed just in the single totalisations.
SuM prints the end page; in the totalizer functioning mode it is printed just in the partial total.
both prints the end page; in the totalizer functioning mode it is printed in the totalisations as well as in the partial total.
(!) yes.tot

tErM *SETTING TERMINATOR*

When connecting a printer it is often necessary to transmit one of the following protocols in order to define the end of the print line.
Cr CR (for TP200, DP190)
CrLF CR LF (for EPSON LX300, TMU295, LP542PLUS, LP542S).
(!) Cr

PForM *PRINT FORMATTING*

In this step one enters a submenu for selecting the weight data which one wants to print and the print layout.
Depending on the type of printer selected in the PrModE step (LP542P or tPr), the parameters which are suggested, change:

Nr. CoP selection of the printing ticket
Number of identical ticket which will are printed : from 1 to 3

********** **tPr** **********

DEFAuL *PRINTOUT DEFAULT*

Through this StEP one enables the default printing relative to the selected functioning mode. The default sets, in each of the following steps, the value marked with the **(!)** symbol.

FiLdS *PRINTING FIELDS*

Through this StEP it is possible to select which fields to be printed among those available: G; n; t; G n; G t; n G; n t; t G, t n; G n t; G t n; n G t; n t G; t G n, t n G (in which G is the gross weight; n is the net weight and t is the tare weight).

(!) G t n

hEiGt *FONT HEIGHT SELECTION FOR PRINTING THE WEIGHT DATA, DATE AND TIME, PROGRESSIVE NUMBERS AND ID'S:*

ChAr 1 normal height

ChAr 2 double height

(!) ChAr 1

bArC *PRINTS THE BAR CODE*

In this step one programmes the printing of the 39 CODE (if "TPR" has been selected in the "PrModE" step), which will be printed before the printing of the date and time:

no does not print the bar code.

yes.tot prints the bar code; in the totalizer functioning mode it is printed just in the single totalisations.

SuM prints the bar code; in the totalizer functioning mode it is printed just in the partial total.

both prints the bar code; in the totalizer functioning mode it is printed in the totalizations as well as in the partial total.

(!) no

NOTES:

- the weight values are expressed in 6 digits without decimal point and with the possible non signficant zeros present.
- between a weight value and the following one a space is inserted.
- the bar code is printed as the last data, after the weight values, possible numeric codes and ticket number, but before the date and time (with TP200 printer).

THE FOLLOWING PARAMETERS ARE VISIBLE ONLY IF IN THE PREVIOUS STEP A PARAMETER DIFFERENT FROM "no" HAS BEEN SET.

VdbAr *SELECTING THE BAR CODE'S VERTICAL DISTANCE OF THE PRECEDING TEXTS:*

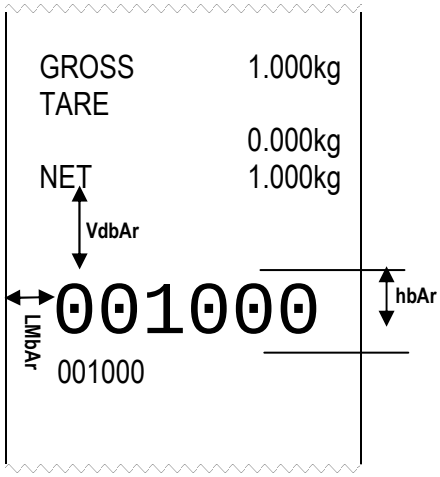
In lines with normal height font, programmable value: 0…9.

(!) 0

LMbAr *SELECTION OF LEFT MARGIN*

Expressed in 1/8 of a mm (from 0 to 99).

(!) 00



WbAr *SELECTION OF BAR CODE FONT WIDTH:*

Programmable value: W1…W3

(!) W1

hbAr *SELECTION OF BAR CODE FONT HEIGHT:*

Expressed in 1/8 di mm (from 0 to 255)

(!) 000

bArFS *SELECTION OF PRINT FIELDS IN THE BAR CODE:*

Programmable value: G; n; t.

In which G is gross weight, n is net weight and t is tare weighing.

(!) G

PntVb *PRINTING OF THE BAR CODE'S NUMERIC FIELD*

This step allows to select the printing of the bar code's numeric field:

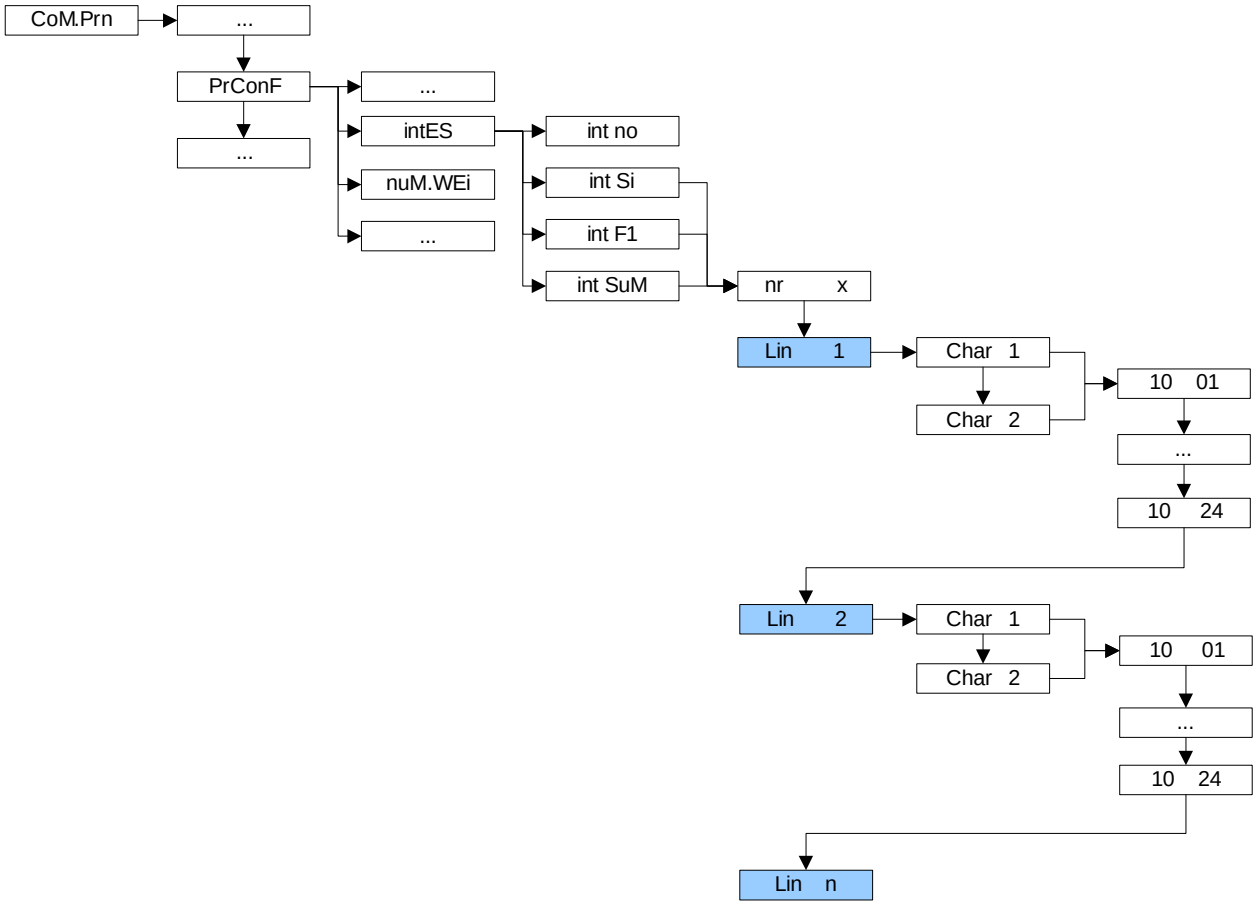
no	the numeric field is not printed.
undEr	under the bar code
AboVE	above the bar code
Ab/un	both above as well as below the bar code.

20 PRINTING THE HEADING

It is possible to programme from the indicator or from PC the 4 alphanumeric heading lines of 24 characters each, which will be printed in the manner which has been programmed until these are cancelled or substituted.

In order to configure the heading one should follow the procedure below:

Enter in the TECHNICAL SET-UP→SEtup→SeriAL→**CoM.Prn**



1. Enter in the step: CoM.Prn

2. Enter in the step: PrConF

3. Enter in the step: IntES

4. Select the heading printing mode:
   int no = does not print the heading
   int Si = prints the heading (only with the first totalisation if a totalizer mode has been selected)
   int F1 = if a totalizer mode is selected, it prints the heading in all the totalisations
   int.SuM = if a totalizer mode is selected, it prints the heading in all the totalisations in the total.
   By selecting a mode different than the **int no**, one will be asked to enter the number of heading lines; the display shows nr x, in which x is the number of set lines (from 0 to 4).

5. Select the number of lines, using the ->0<- key and press ENTER to confirm.

6. The Lin 1 message appears on the display for a few seconds indicating which line one is programming (in this case it's line 1).

7. Then the instrument asks to select the height of the print character:
   ChAr 1 = prints line at a normal height (for tpr) or character 1 (for LP542PLUS).
   ChAr 2 = prints line at double the height (for tpr) or character 2 (for LP542PLUS).
   (see section 9 for further information)
   Use the ->0<- key to select the character height, then press ENTER to confirm

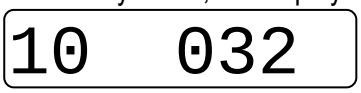
8. The instrument is ready to programme the first heading line, which consists in entering a sequence of numeric two digit codes, corresponding to the fonts (see **Table 3**). A line can have up to 24 characters (including the empty spaces).

LIST OF THE CODES AND CORRESPONDING PRINTED CHARACTERS

CODE	CARACTÈRE	CODE	CARACTÈRE	CODE	CARACTÈRE
32		66	B	100	d
33	!	67	C	101	e
34	“	68	D	102	f
35	#	69	E	103	g
36	$	70	F	104	h
37	%	71	G	105	i
38	&	72	H	106	j
39	‘	73	I	107	k
40	(	74	J	108	l
41	)	75	K	109	m
42	*	76	L	110	n
43	+	77	M	111	o
44	,	78	N	112	p
45	-	79	O	113	q
46	.	80	P	114	r
47	/	81	Q	115	s
48	0	82	R	116	t
49	1	83	S	117	u
50	2	84	T	118	v
51	3	85	U	119	w
52	4	86	V	120	x
53	5	87	W	121	y
54	6	88	X	122	z
55	7	89	Y	123	{
56	8	90	Z	124	|
57	9	91	[	125	}
58	:	92	\	126	~
59	;	93	]	127	⌂
60	<	94	^		
61	=	95	_		
62	>	96	`		
63	?	97	a		
64	@	98	b		
65	A	99	c		

Table 3

In the entry mode, the display is managed in the following way:



on the right one enters the character (032 is the default character), while the number on the left indicates the position of this character on the line.

9. when one has finished programming the heading line, the instrument automatically passes to the programming of the following line
10. repeat the operations from point 6 for all the set lines.
11. once the programming of the heading is done, the instrument automatically passes to the following step nuM.WEi .
12. to save the entered heading, press the C various times until the display shows the message "SAVE?": press ENTER to save.

When entering the codes, it is possible to carry out the other functions by pressing the F key and a keyboard number:

- **F + 0: prints the HELP ON LINE:** summarizes the codes of the alphanumeric codes and the list of the other functions.
- **F + 1: cursor forwards:** while one is programming a print line, it allows to scroll the set characters and modify them.
- **F + 2: cursor backwards:** while one is programming a print line, it allows to scroll the set characters and modify them.
- **F + 3:** while one is programming a print line, it carries out this command; **all the codes of this line are cancelled.**
- **F + 8:** while one is programming a print line, by carrying out this command, **the test printing of the line is carried out.**
- **F + 9:** once the programming or the modifcation of a print line has been made, by carrying out this function **the new programming is memorised**.

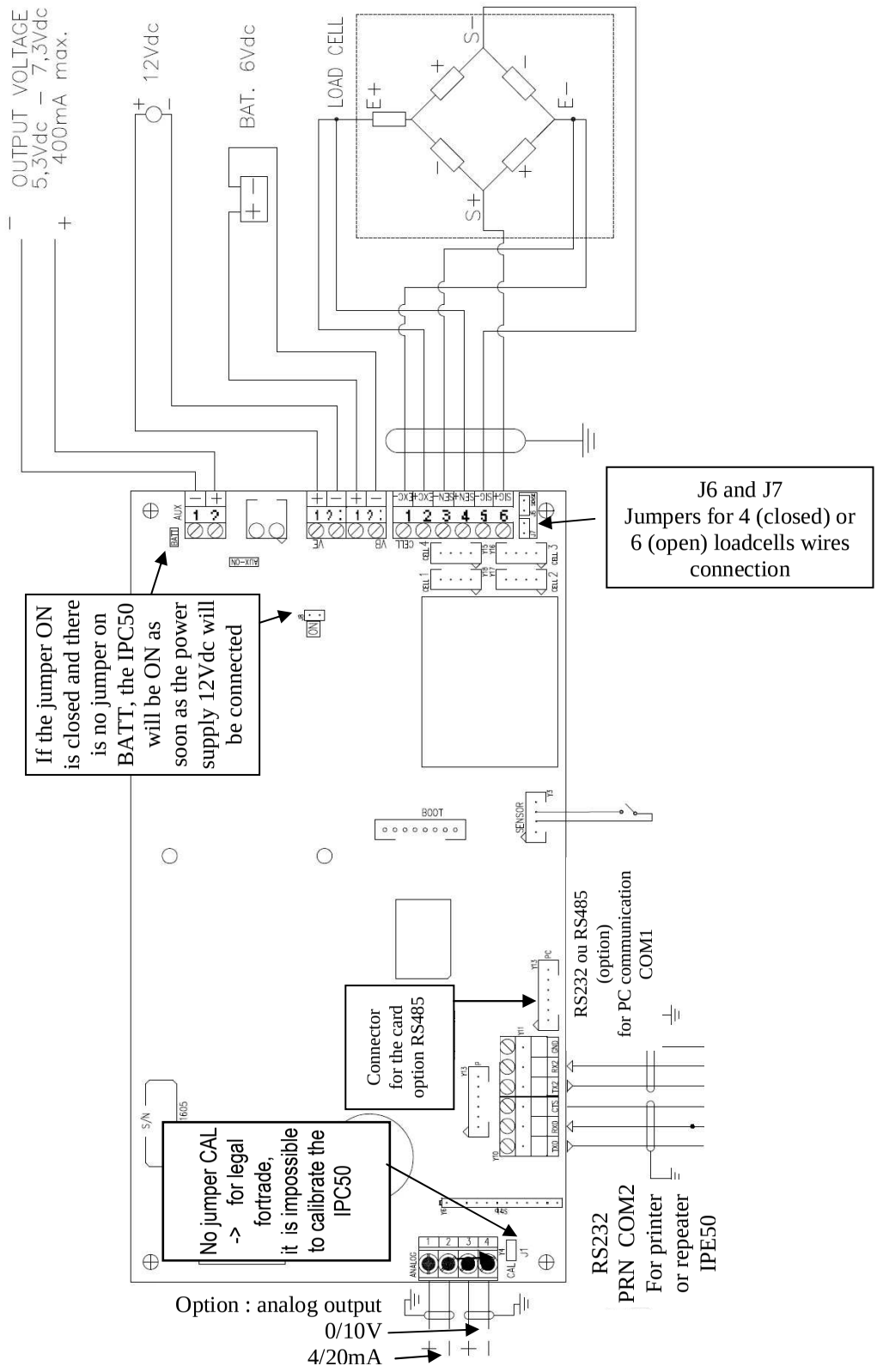
21 ERROR MESSAGES

While using the indicator, it is possible to incur in the following errors:

MESSAGE	DESCRIPTION
PrEC.	It is displayed if one tries to calibrate a point without first having confirmed the number of calibration points
ErMot	Weight unstable during the acquisition of a point during calibration.
ErPnt	During the acquisition of a calibration point a null value has been read by the converter.
Er – 11	Calibration error: a too small calibration weight has been used; it is advisable to use a weight equal to at least half of the scale capacity.
Er – 12	Calibration error: the acquired calibration point (tP1 o tP2 o tP3) is equal to the zero point (tP0).
C.Er. 36	During the calibration the convertor A/D has measured a negative value. The signal is negative, check the wiring of the loadcells
Er – 39 or 85	It is displayed when the instrument has not yet been calibrated and initialized. Press the ->T<- key when the instrument displays “ERR – 39 or 85” to enter the technical set-up environment (with the standard procedure it is not possible) programming of all the parameters of the set-up environment and the calibration.

22 CONNECTION SCHEMES

IPC50



MEANING OF TERMINAL BOARDS AND MOTHER BOARD JUMPERS

VB : 6 Vdc BATTERY POWER SUPPLY
1 - BATT – (0 Vdc) GND
2 + BATT + (6 Vdc)

VE : 12/24 Vdc POWER SUPPLY
2 - 0 Vdc (GND)
1 + +12 to 25 Vdc

V -AUX : AUXILIARY POWER SUPPLY (OUTPUT VOLTAGE):
1 - 0 Vdc (GND)
2 + 5,3 to 7,3 Vdc 400 mA max
V-AUX It is used to power an external device and its functioning mode depends on the "PWr.Prn" parameter of the set-up environment; you can connect the power supply of printer TP200 **only if you connect a battery** on VB (problem of consumption of current during the printing)

Prno	with instrument on, printer not managed and auxiliary output always active.
PWr.EXt	with instrument on, printer managed and auxiliary output always active.
PWr.int	printer managed, auxiliary output active only when the instrument prints.
Ext.oFF	printer managed and auxiliary output always active; the start-up characters are transmitted to the printer, because the printer is considered to be configured in energy saving mode.

LOADCELL connection

6 SIG +	SIGNAL +
5 SIG -	SIGNAL -
4 SEN +	REFERENCE +
3 SEN -	REFERENCE -
2 EXC +	LOADCELL POWER SUPPLY +
1 EXC -	LOADCELL POWER SUPPLY **-**

Jumpers J6 and J7
If closed, REFERENCE + and POWER SUPPLY +, REFERENCE – and POWER SUPPLY – are connected on the board -> connection for 4 loadcell wires.
If opened -> connection for 6 loadcell wires.

CAL = if closed, it enables the access to the metrological parameters
ON = if closed and no jumper, the IPC50 unit will be functional as soon as the power supply will be connected, the key ON/OFF (key C) does not work for this function.
BOOT = for 1 option card: I/O board or ALIBI MEMORY board or TIMER board

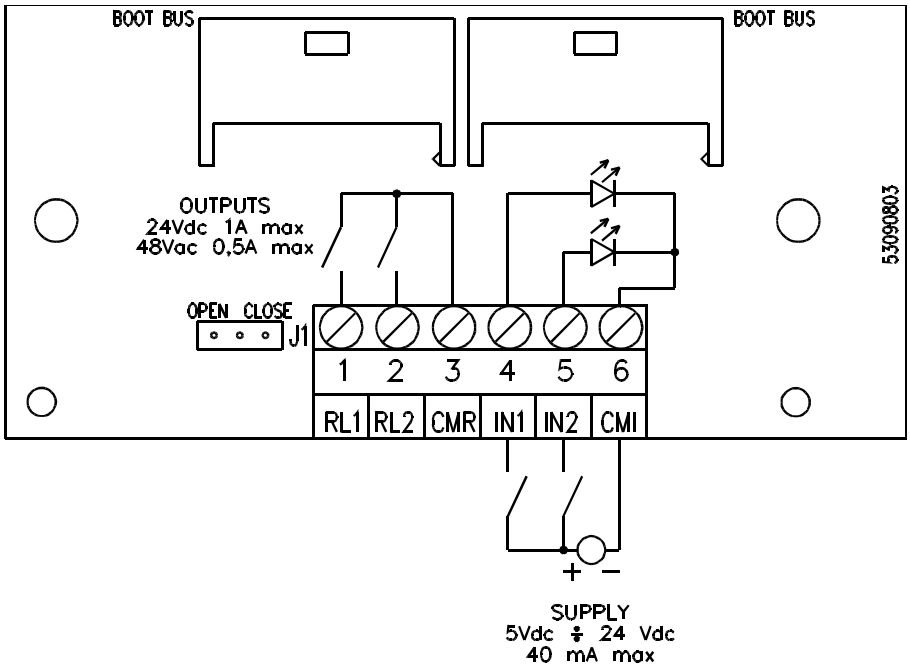
PC SERIAL PORT RS232

	RS232
TXPC	TX
RXPC	RX
GND	GND

PRN SERIAL PORT

TXPR
RXPR
GND
CTS

I/O OPTIONAL EXPANSION CARD WITH 2 INPUTS AND 2 OUTPUTS

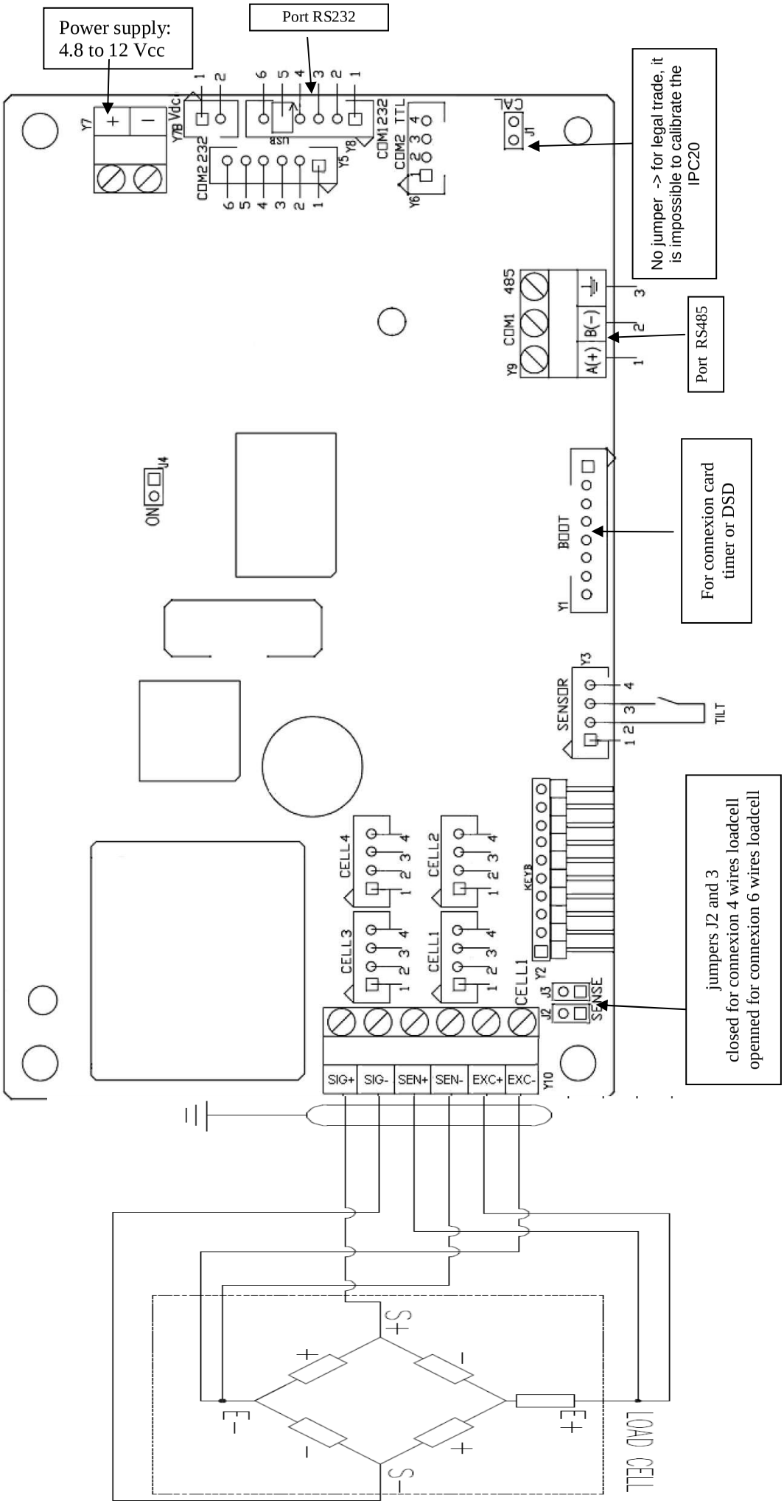


It is possible to connect 1 card (2 inputs / 2 relays) in the motherboard on the BOOT connector.

J1	Management of Inputs and Relays
OPEN	IN1, IN2, RL1, RL2

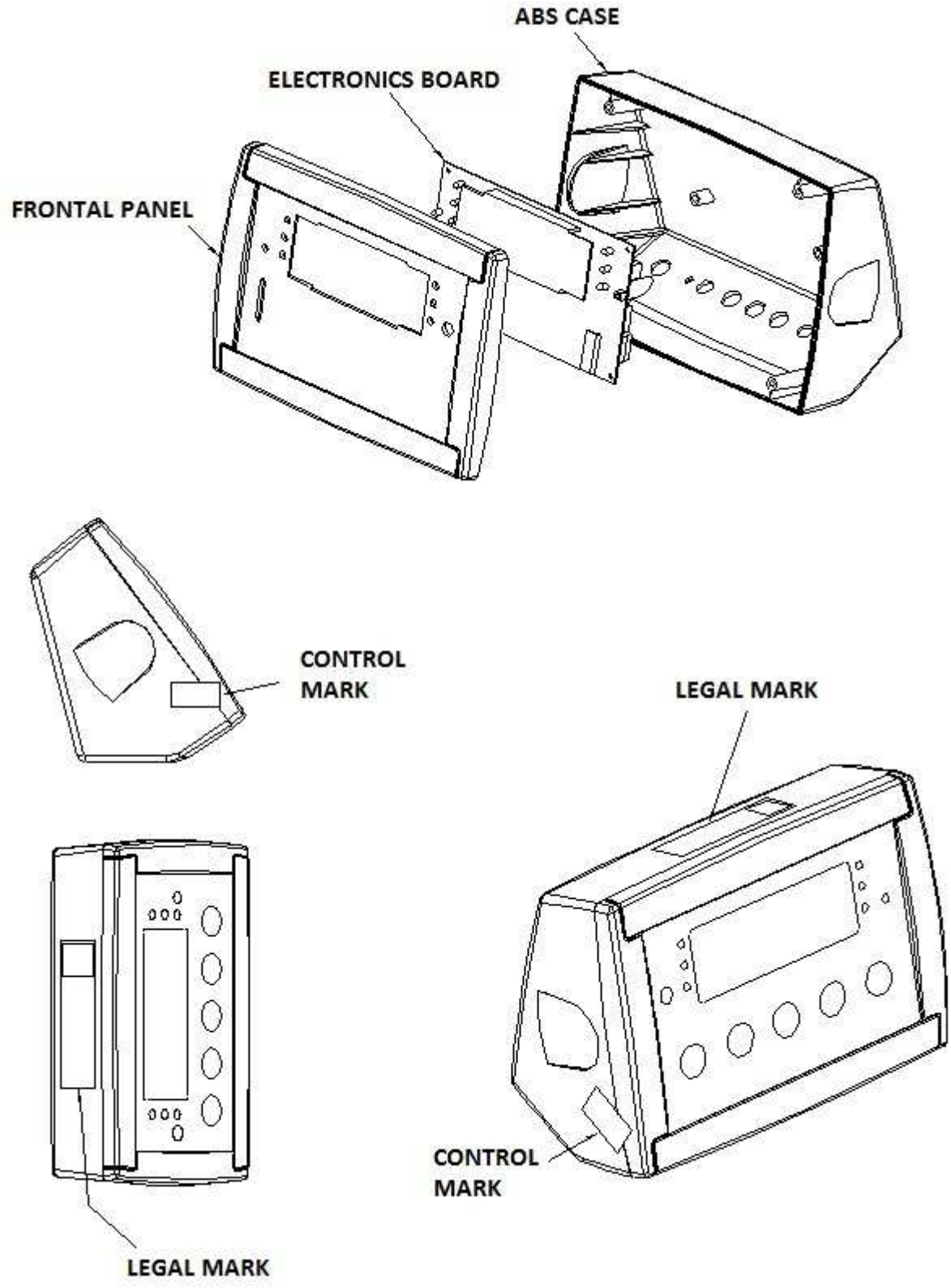
The maximum power of the relays contact is 24 Vdc 1A, the maximum voltage applicable to the optoisolated inputs is between 5 – 24 Vdc with maximum current of 40 mA.
The optoisolation of the inputs is not correct any more if these are activated with a voltage available on the indicator (for example the battery voltage VB), an external voltage must be used instead.

IPC20

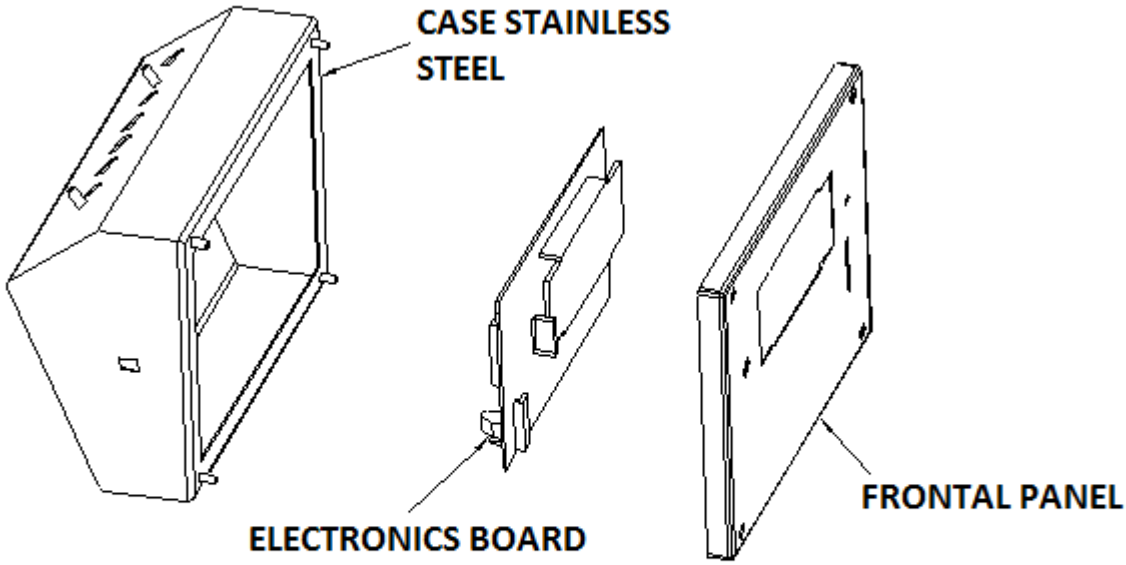

Power supply:
4.8 to 12 Vcc
Port RS232
No jumper -> for legal trade, it is impossible to calibrate the IPC20
Port RS485
For connexion card timer or DSD
jumpers J2 and 3
closed for connexion 4 wires loadcell
openned for connexion 6 wires loadcell
Y7
Vdc
COM2 232
COM1 232
COM2 TTL
USB
J1
485
COM1
A(+)
B(-)
Y9
ON
J4
BOOT
Y1
SENSOR
Y3
TILT
CELL4
CELL2
CELL3
CELL1
KEYB
Y2
J3
J2
SENSE
SIG+
SIG-
SEN+
SEN-
EXC+
EXC-
Y10
S+
S-
E-
E+
LOAD CELL

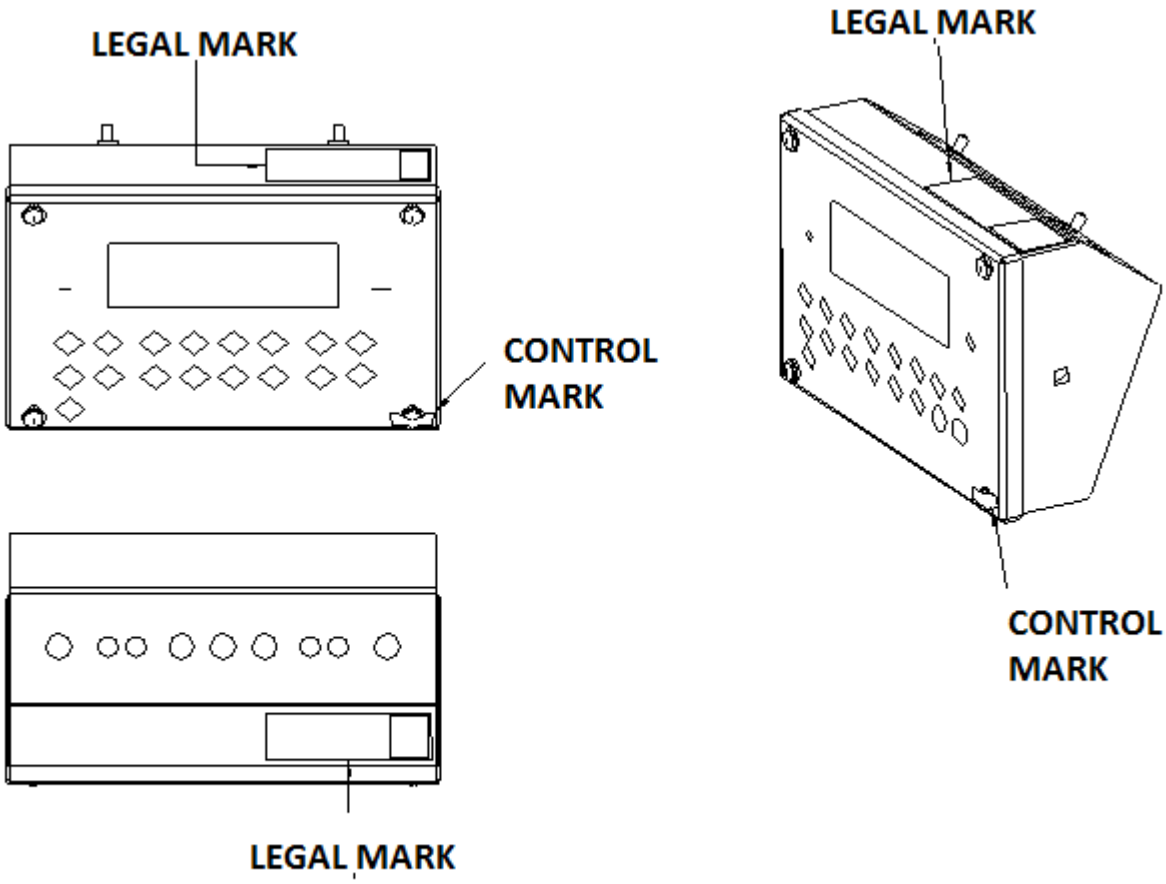
23 SECURING REQUIREMENTS FOR LEGAL FORTRADE USING

Serie IPC50
ABS CASE

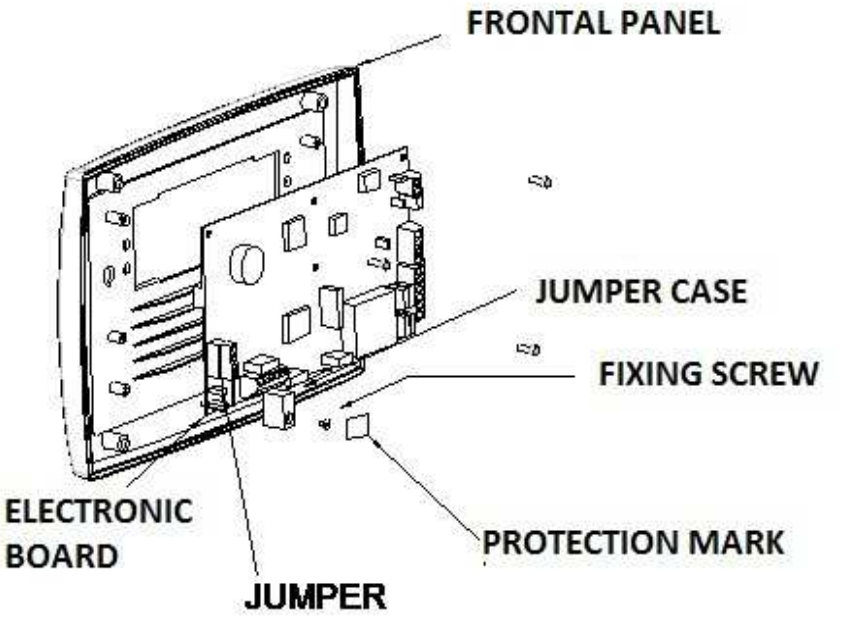


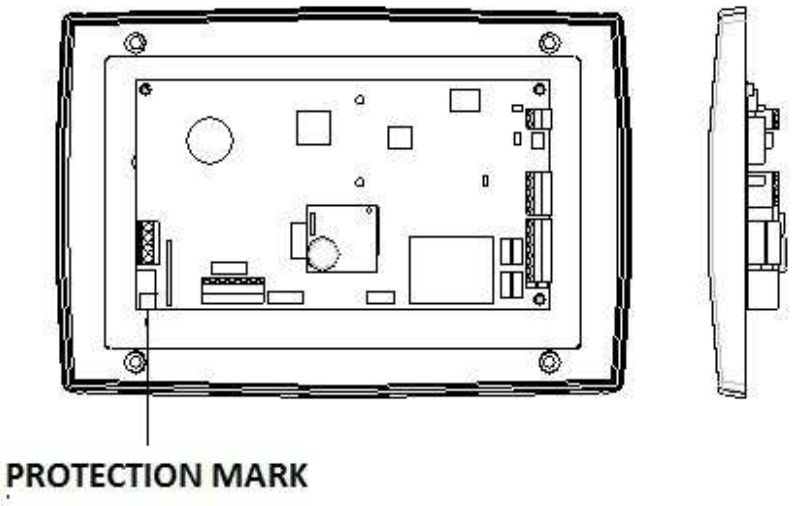
IPC50 SATINLESS STEEL CASE

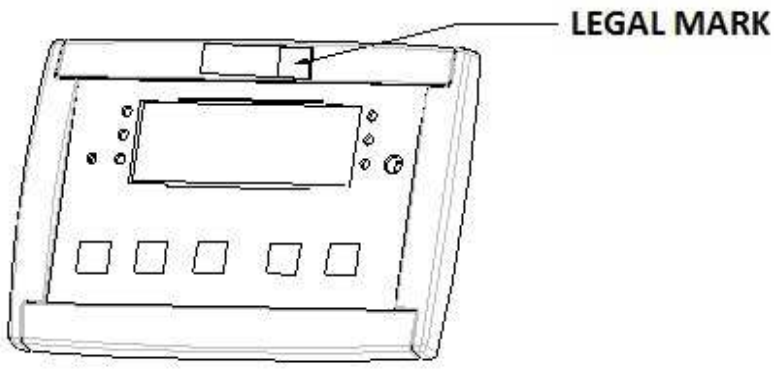




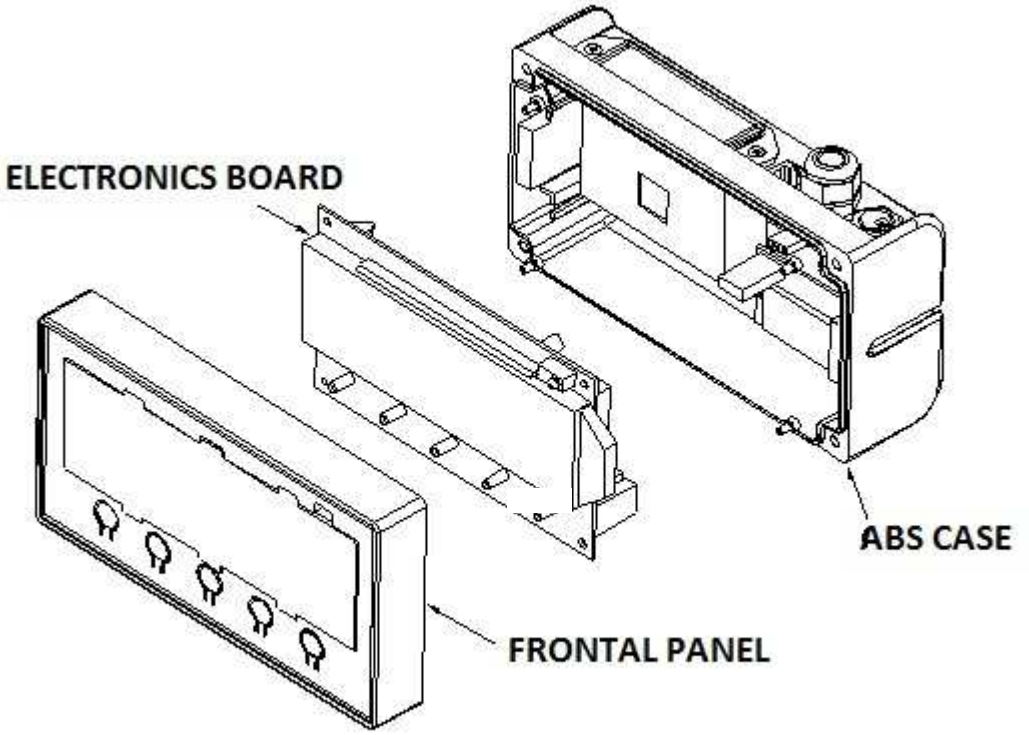
IPC50 FRONTAL PANEL

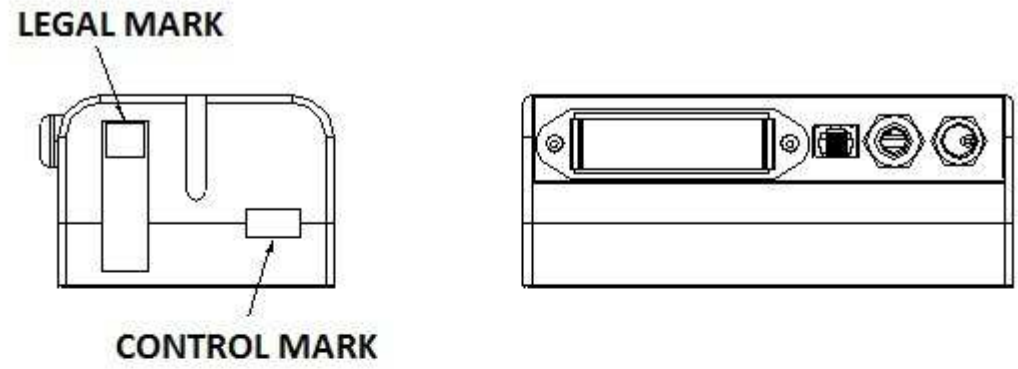


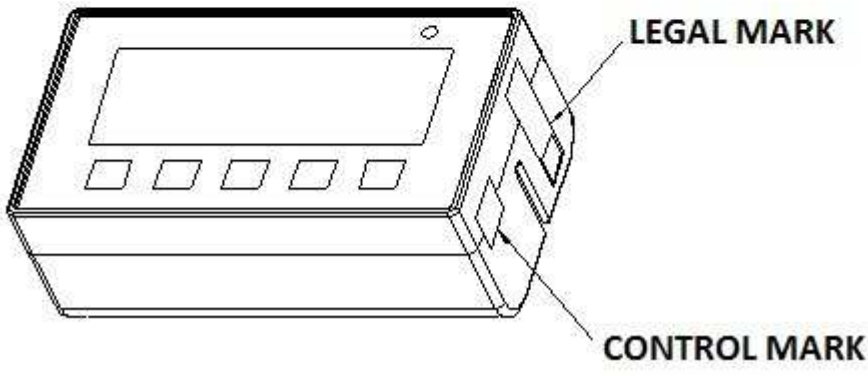




SERIE IPC20


ELECTRONICS BOARD
ABS CASE
FRONTAL PANEL


LEGAL MARK
CONTROL MARK


LEGAL MARK
CONTROL MARK